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1. The permission of the Government has been obtained for the use in this Bulletin of certain material compiled by the Central Statistics Office and Government Departments. The Bulletin also contains material which has been made available by the courtesy of licensed banks and other financial institutions.
2. Unless otherwise stated, statistics refer to the State, i.e., Ireland exclusive of Northern Ireland.
3. In some cases, owing to the rounding of figures, components do not add to the totals shown.
4. The method of seasonal adjustment used in the Bank is that of the US Bureau of the Census X-11 variant.
5. Annual rates of change are annual extrapolations of specific period-to-period percentage changes.
6. The following symbols are used:

e estimated	n.a. not available
p provisional	. . no figure to be expected
r revised	– nil or negligible
q quarter	f forecast
7. Data on euro exchange rates are available on our website at www.centralbank.ie and by telephone at 353 1 2246380.

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Forecast Summary Table

	2013	2014	2015	2016 ^f	2017 ^f
Real Economic Activity					
(% change)					
Personal consumer expenditure	-0.8	1.7	4.5	4.0	2.3
Public consumption	0.1	5.4	1.2	2.3	1.6
Gross fixed capital formation	-5.4	18.2	32.7	12.3	6.1
Exports of goods and services	3.1	14.4	34.4	6.4	4.5
Imports of goods and services	1.4	15.0	26.7	8.0	4.7
Gross Domestic Product (GDP)	1.1	8.5	26.3	4.9	3.6
Gross National Product (GNP)	4.7	9.2	18.7	4.6	3.1
External Trade and Payments					
Balance-of-Payments Current Account (€ million)	3,857	3,208	26,156	24,041	25,585
Current Account (% of GNP)	2.1	1.7	10.2	8.8	8.9
Prices, Costs and Competitiveness					
(% change)					
Harmonised Index of Consumer Prices (HICP)	0.4	0.2	0.0	0.2	1.4
<i>of which:</i> Goods	-0.6	-1.9	-3.0	-2.6	-0.2
Services	1.6	2.5	3.0	2.8	2.8
HICP excluding energy	0.5	0.6	1.0	0.8	1.2
Consumer Price Index (CPI)	0.5	0.2	-0.3	0.4	1.5
Nominal Harmonised Competitiveness Indicator (Nominal HCI) ¹	-4.0	3.0	0.4	n.a.	n.a.
Compensation per Employee	1.6	1.8	2.7	2.5	2.5
Labour Market					
(% change year-on-year)					
Total employment	2.4	2.0	2.5	2.1	1.3
Labour force	0.4	-0.3	0.5	0.4	0.6
Unemployment rate (ILO)	13.1	11.1	9.4	7.9	7.2
Technical Assumptions²					
EUR/USD exchange rate	1.33	1.33	1.11	1.11	1.11
EUR/GBP exchange rate	0.85	0.81	0.73	0.84	0.84
Oil price (\$ per barrel)	108.58	100.10	53.70	42.51	49.72
Interbank market – Euribor ³ (3-month fixed)	0.23	0.21	-0.02	-0.18	-0.13

¹ Based upon the annual change in the average nominal HCI.

² The technical assumption made is that exchange rates remain unchanged at their average levels in mid-June. Oil prices and interest rates are assumed to move in line with the futures market.

³ Euribor is the rate at which euro interbank term deposits are offered by one prime bank to another, within the euro area. Daily data from 30 December 1998 are available from www.euribor.org.

Comment

Assessing both the performance and prospects for the Irish economy has been made more problematic, respectively, by the scale of revisions to the 2015 National Accounts data and the outcome of the UK referendum on membership of the European Union. In terms of economic performance, while compiled on the basis of international standards, the 2015 National Income and Expenditure accounts are not reflective of actual economic activity taking place in Ireland. Instead, these developments reflect the statistical ‘on-shoring’ of economic activity associated with a level shift in the size of the Irish capital stock arising from corporate restructuring and balancing sheet reclassification in the multinational sector and also growth in aircraft leasing activity (see Box A, page 11). As a result, National Accounts data now include a very significant amount of activity carried out elsewhere, but formally recorded as part of Irish GDP and GNP.

In addition to distorting the reality of what is happening in the economy, metrics derived from these measures, such as the various fiscal ratios-to-GDP, measures of potential output, the output gap, the structural deficit and the expenditure benchmark, have become much less meaningful. In terms of one of the most commonly used gauges of the fiscal stance, the general government deficit-to-GDP ratio, the volatility of GDP now argues for focussing in the near-term on the actual deficit in nominal terms rather than relying solely on the ratio itself or a structural deficit target, while working to develop a meaningful cyclically-adjusted measure of fiscal sustainability appropriate to Ireland’s circumstances. In the absence of the latter, the government’s stated goal of achieving structural balance by 2018 should be interpreted as a goal of achieving actual budget balance by 2018.

National Accounts developments also highlight the potential fragility of some rapidly growing sources of recent Exchequer revenues, such as corporation tax receipts, which grew by almost 50 per cent in year-on-year terms in 2015. Past experience highlights the danger of relying on volatile and potentially transitory revenue sources, which can quickly melt away, to fund increased levels of public spending or reductions in tax rates, which can prove hard to reverse.

While the recent National Accounts data seriously misrepresent the overall growth of domestic economic activity in Ireland in 2015, a wide range of more reliable spending and activity indicators suggest that economic activity continues to expand at a reasonably healthy pace. In particular, consumer spending has continued to grow at a relatively strong pace, supported by solid gains in employment and rising earnings. Underlying domestic demand, comprised of the sum of personal expenditure on goods and services, net government expenditure on goods and services and investment excluding in aircraft and intangible assets, grew by close to 5 per cent in 2015. Together with employment growth of 2.5 per cent and growth in compensation per employee of 2.7 per cent, this points to growth in domestic activity broadly in the region of 5 per cent.

However, such estimates are only rough approximations and, in view of the distortions now associated with the conventional GDP and GNP aggregates, there is a need to develop a more meaningful, commonly agreed measure of the actual level of Irish economic activity that accurately mirrors developments within the economy. Constructing such a measure is made all the more important given the potential for greater volatility in conventionally measured GDP in the future,

taking account of the growing influence of corporate restructurings and balance sheet reclassifications on this aggregate.

Looking ahead, assessing the outlook for the economy is further complicated by the outcome of the Brexit referendum in the UK. The close relationship between the Irish and UK economies creates a particular exposure for the Irish economy from Brexit. Both in the short-term and in the longer-term, the economic impact of Brexit on Ireland is set to be negative and material. Quantifying the impact with much precision, however, is difficult. In the transition period to establishing new arrangements between the UK and the EU, there is the potential for a protracted period of heightened uncertainty and risk aversion. Beyond that, potential long-run arrangements encompass a wide range of possible outcomes, also making quantification difficult. Qualitatively, however, both in the short-run and the longer-term, Brexit is likely to adversely affect the Irish economy.

The long-run economic impact of Brexit on Ireland will be influenced by the nature of the withdrawal agreement between the EU and the UK and the subsequent evolution of both economies. The nature and scale of the eventual macroeconomic impact of Brexit for the Irish economy will reflect the extent to which the exit arrangements bring about any change to the free movement of goods, services, capital and labour, currently facilitated through the operation of the EU Single Market. Trade, FDI and the labour market are the key channels for the macroeconomic effects of Brexit.

In the near term, the downside risks for the Irish economy, as is also the case for the UK and broader European economies, arise mainly from the potential macroeconomic, financial and currency market effects of the increase in uncertainty related to giving effect to Brexit. An important element of this uncertainty revolves around the terms of the future relationship between the UK and the EU, in part, related to questions about how long it will take to

decide those terms and the impact of the new relationship.

Analysis undertaken in the Central Bank suggests that Brexit would have a negative impact on the Irish economy through a range of channels (see Box B, page 13). The scale of this negative impact depends on the extent to which UK-EU trade, labour mobility and financial interactions would become more restricted after Brexit. While the Irish economy has become less reliant on the UK for trade over recent decades, the UK remains a particularly important market for indigenous firms. Some sectors, including agri-food, clothing and footwear and tourism continue to have a relatively high dependency on exports to the UK and, consequently, could be affected disproportionately.

Taking account of these considerations, relative to a no-Brexit baseline, projected Irish GDP growth has been revised down by 0.2 and 0.6 per cent in 2016 and 2017, respectively. On this basis, and subject to the caveats expressed earlier about conventional National Accounts measures, GDP is projected to grow by 4.9 per cent this year and by 3.6 per cent in 2017. Supported by continued solid gains in employment, underlying domestic demand is projected to grow by close to 4 per cent this year, slowing to 3 per cent in 2017. This slowdown reflects a projected negative impact from Brexit-related factors.

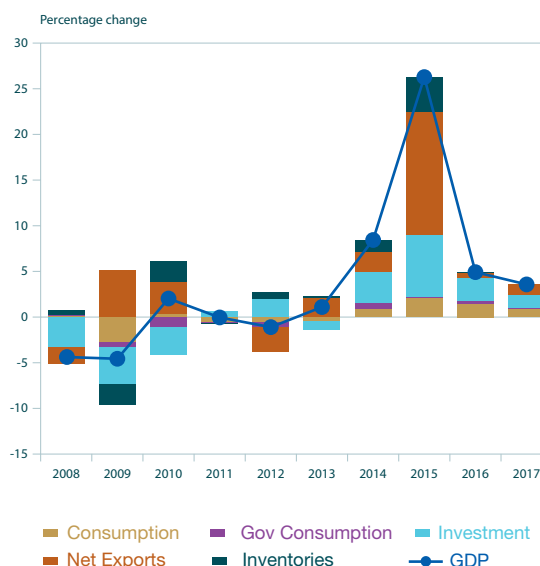
Notwithstanding these downward revisions, the outlook for the Irish economy remains broadly favourable, with unemployment set to continue to fall further. However, risks to the projections are clearly weighted to the downside, reflecting the possibility of a more adverse impact on the UK economy, a larger spill-over to the broader international economy or the potential for more negative domestic confidence and labour market effects than incorporated in the forecasts. Taking account of these risks and given the potential for Brexit to have a negative and material impact, policies should remain focussed on underpinning stability and reducing uncertainty.

The Domestic Economy

Overview

- National Income and Expenditure Accounts (NIE) for 2015 point to a volume increase in GDP of 26.3 per cent and an increase in real GNP of 18.7 per cent. These constitute exceptionally large revisions from preliminary estimates that indicated GDP growth of 7.8 per cent and GNP growth of 5.7 per cent. The headline figures reflect a level shift in the amount of capital assets recorded in Ireland, mainly due to corporate restructuring by multinational firms located here. The activity generated by this much larger capital base is now included in Irish GDP. This is most evident in the export figures which have been boosted by contract manufacturing abroad on behalf of multinational firms, including recently redomiciled firms located here. Investment has also been revised upwards significantly to account for intellectual property assets now booked here and increased investment in aircraft, located abroad but owned by Irish based leasing firms (for more details see Box A).*
- Following these revisions, Irish GDP now includes a very significant amount of activity carried out in other countries but recorded in the Irish national accounts. As a result, both the levels and the rates of change in Irish GDP and GNP are not currently reflecting the actual level of economic activity carried out in Ireland. To get a more accurate measure of the level of activity in the domestic economy it is necessary to look beyond the headline GDP and GNP figures. One useful indicator of activity in the domestic economy is underlying domestic demand – that is domestic demand, excluding investment in aircraft and intangible assets. This measure is estimated to have increased by closer to 5 per cent in 2015, reflecting buoyant consumer spending and a significant pick-up in construction and equipment investment. Another such indicator is employment, which also grew strongly in 2015.*
- The economy is projected to grow by 4.9 per cent in GDP terms this year and by 3.6 per cent in 2017. The outlook has been revised downwards following the outcome of the UK referendum on membership of the European Union (Brexit). Relative to a no-Brexit baseline, projected GDP growth was reduced by approximately 0.2 and 0.6*

Chart 1: Contributions to GDP



Source: CSO and Central Bank of Ireland.

per cent in 2016 and 2017, respectively. Notwithstanding this downward revision, the Irish economy continues to perform strongly and growth remains on track to exceed the EU average by a significant margin both this year and next.

- The Brexit decision will have a negative impact on Irish GDP, employment and incomes. The main channels through which the effects of Brexit will be felt include trade (predominantly) via weaker foreign demand, foreign direct investment and the labour market. Furthermore, the likelihood of heightened levels of uncertainty could weigh on consumer and investor confidence. Increased financial market volatility could also generate adverse spillovers to countries such as Ireland with close linkages to the UK (for more details see Box B).*
- In the medium to long term, depending on the nature of the final arrangements, there is the potential for significant adverse impacts from any increased tariff and non-tariff barriers which permanently restrict trade, financial and labour market flows. In addition, there is also the potential for impacts from lower demand in the UK and in Ireland's main trading partners. Model estimates outlined in*

Box B point to a potential negative impact on Irish GDP of over 3 per cent after ten years.

- *Underlying domestic demand growth moderated in the first quarter of 2016 reflecting offsetting trends from consumer and investment spending. For the year as a whole growth of 4 per cent is anticipated with close to 3 per cent growth projected in 2017. This slowdown partly reflects an assumed negative impact from the Brexit vote.*
- *Personal consumption expenditure is forecast to grow by 4 per cent in 2016 and by 2.3 per cent in 2017. The forecast is driven by the strong outlook for the labour market, incomes and momentum from the release of pent-up demand. However it also reflects the unwinding of some positive factors such as the boost to disposable incomes from lower energy prices. In addition, the impact of the Brexit referendum, while likely to be relatively modest in 2016 will probably be more evident in 2017.*
- *The revisions to the National Accounts make interpreting investment data extremely difficult. The Brexit decision has motivated a small downward revision to the outlook for investment expenditure, more notably in 2017. This is likely to manifest itself mainly via delayed or postponed (equipment) investment decisions. In light of the current shortage of residential (and commercial) properties, any impacts on the construction sector in the short-term are likely to be minimal. The outlook for investment expenditure however remains robust with growth of 12.3 per cent and by 6.1 per cent envisaged in 2016 and 2017, respectively.*
- *Reflecting somewhat weaker external demand conditions, higher levels of uncertainty and adverse exchange rate movements (reflecting Brexit), exports are expected to moderate with growth of 6.4 and 4.5 per cent in 2016 and 2017, respectively. Import growth is also set to moderate with growth of 8 per cent in 2016 and 4.7 per cent in 2017.*
- *The labour market outlook remains positive despite elevated risks to employment in sectors more dependent on the UK. However, the overall impact will be limited reflecting Ireland's reduced dependence on the UK market over recent decades and the strong growth evident in other sectors of the*

economy. In addition there is a high degree of flexibility in UK - facing sectors of the economy that have proved to be adaptable to episodes of exchange rate volatility in the past. Employment is forecast to increase by 2.1 per cent in 2016 and by 1.3 per cent in 2017. This outlook should see further declines in the unemployment rate which is expected to average 7.9 per cent in 2016 and 7.2 per cent in 2017 (the marked decline in unemployment is highlighted in Box C).

- *Despite the strength in the domestic economy, headline inflation remains subdued. Low global commodity prices continue to feed through to goods price inflation. This pattern may become more pronounced over the next year reflecting exchange rate movements against sterling. Services inflation, on the other hand, while well contained by historic standards, is registering continued counter-balancing increases. (The diverging trends in goods and services inflation is discussed in Box D). Following on from marginal deflation in 2015, the Consumer Price Index (CPI) and the Harmonised Index of Consumer Prices (HICP) inflation are expected to average 0.4 and 0.2 per cent respectively in 2016. Looking to 2017, CPI and HICP inflation are forecast to average 1.5 per cent and 1.4 per cent, respectively.*
- *The risks to the projections are firmly weighted to the downside following the Brexit vote. These reflect both the possibility of a larger than anticipated direct impact on the UK economy and a larger spillover to other trading partners, particularly the Euro Area. In the domestic economy, the potential exists for more negative impacts on consumer and investor sentiment and for a more adverse labour market effect.*

Box A: Recent Revision to the National Income and Expenditure AccountsBy Diarmaid Smyth¹

The 2015 NIE published by the Central Statistics Office (CSO) revealed exceptional revisions to both the level and growth rate of measured output in Ireland. The 2015 growth rate (as proxied by GDP) was revised up to 26.3 per cent (from 7.8 per cent) with GNP growth revised up to 18.7 per cent (from 5.7 per cent). The headline figures do not accurately reflect economic activity within Ireland as evidenced by the extraordinary large annual changes (Table 1). The data reveal a very large level shift in capital assets (up €300 billion) recorded in Ireland on account of corporate restructuring, reclassifications and aircraft leasing. This “on-shoring” of activity has little real benefit in terms of employment or incomes and obscures underlying growth dynamics. The CSO compiles the data in accordance with international rules (European System of National and Regional Accounts (ESA 2010)).² However, the highly open nature of the Irish economy, global production chains and the heavy concentration of high-value added sectors in Ireland (e.g. pharma-chem, IT and aircraft leasing) are distorting headline data series. In simple terms, the NIE data now include a very significant amount of activity carried out in other jurisdictions but formally recorded in the Irish national accounts.

A summary of the main components in the NIE is shown in Table 1. The revisions and reclassifications manifest most clearly in headline GDP, GNP, trade and investment data with marked “level shifts” occurring in 2015. Much of this reflects contract manufacturing type activity on a very large scale. For example, the NIE reported that goods exports amounted to €195 billion last year, whereas the merchandise trade statistics (these only include goods that physically cross the Irish border) reported much lower exports of €112 billion.

Table 1: National Accounts Aggregates: 2015 - Expenditure Side

	2015 Nominal (initial estimate)	2015 Nominal (current estimate)	2015 Real Growth Rate (initial)	2015 Real Growth Rate (revised)
	€bn	€bn	% y/y	% y/y
Consumption	92.4	92.4	3.5	4.5
Government	27.9	27.0	-0.8	1.1
Investment	47.2	54.1	28.2	32.7
Exports	260.6	317.2	13.8	34.4
Imports	215.8	236.0	16.4	21.7
GDP	214.6	255.8	7.8	26.3
Net Factor Income	-33.6	-53.2		
GNP	181.0	202.6	5.7	18.7

On the output side, the level shift is very apparent in Gross Value Added (GVA) data (Table 2), with output up €62 billion in 2015. Approximately four-fifths of this was accounted for by the industrial sector although a breakdown into specific sub-sectors was not provided. The other notable rise occurred in the category “other services” which includes aircraft leasing.³ The rise in industrial output is likely to be largely accounted for by foreign-owned multinationals and potentially a small number of firms, reflecting the restructuring that took place in 2015. The near doubling in the level of industrial output was also accompanied by a very large rise in depreciation and measured profitability (not shown in Table 2).

1 Irish Economic Analysis Division

2 For more details see “Box A: The Implications of Recent Changes to Macroeconomic Statistics”, in the Domestic Economy Chapter of the Central Bank of Ireland *Quarterly Bulletin* No. 3, 2014.

3 For a more detailed discussion see: “26% GDP Growth: Where did it come from and who got it?” by Seamus Coffey. Available from: <http://economic-incentives.blogspot.ie/>

Box A: Recent Revision to the National Income and Expenditure Accounts

By Diarmaid Smyth

Table 2: National Accounts Aggregates: 2015 - Output Side, € billions

	2014 Nominal	2015 Nominal	Annual Change
Agriculture	4.2	4.1	-0.1
Industry (excl construction)	41.1	91.8	50.7
Construction	5.4	6.0	0.6
Distribution	47.1	48.8	1.7
Public Admin.	7.2	7.4	0.3
Other services	71.8	78.0	6.2
GVA	174.9	236.6	61.5
Depreciation	30.9	61.6	30.9

Despite the noise in the headline figures, the underlying growth story remains broadly positive. Domestic demand data (including labour market releases) point towards an underlying rate of growth of closer to 4 per cent this year.⁴ One useful metric is underlying domestic demand. This strips out transport and intangibles related investment from domestic demand (Figure 1). Other indicators such as retail sales data, labour market series and exchequer figures also provide a good barometer of economic activity.

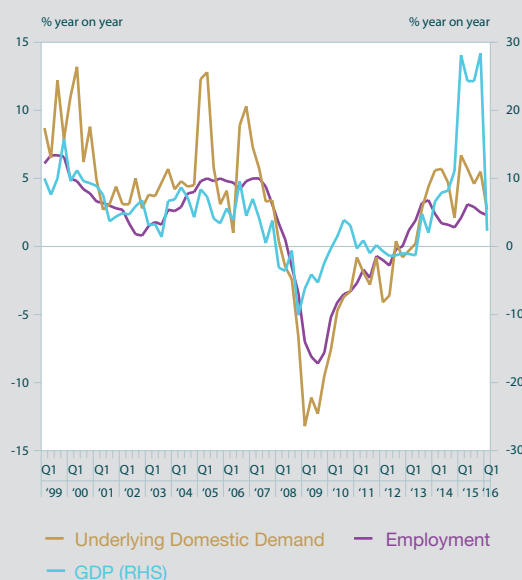
The scale of data revisions is unprecedented and has potentially serious implications in terms of the interpretation of ESA 2010, headline fiscal ratios, the Macroeconomic Imbalance Procedure (MIP) and Irish budget contributions. The main deficit and debt ratios (as a percentage of GDP) are now significantly below previous estimates given that the level of GDP has been revised up from €215 billion to €256 billion. This automatically lowered the end-2015 debt ratio to less than 80 per cent (from 94 per cent) and the deficit to below 2 per cent (from 2.3 per cent).

Also on the fiscal side, the revisions to the NIE go some distance in explaining the surge in corporate tax receipts last year. Firms that are re-domiciled here are now paying their corporate taxes to the Irish Exchequer.⁵ However, there is a risk that these firms could relocate their headquarters out of Ireland in the future with obvious fiscal/tax implications.

On the external side, the current account surplus soared to 10.2 per cent of GDP last year reflecting a huge rise in the trade balance (contract manufacturing). The measured current account surplus should be interpreted in the context of the massive level negative shift in the Net International Investment Position (NIIP) (also part of the MIP set of indicators). This large NIIP will run down over time as the depreciation of foreign-owned domestic capital means a decline in foreign liabilities/large current account surplus. This balance again obscures the underlying picture which is positive – a healthy but much smaller underlying surplus.

⁴ For more details see “Box B: Linking Employment to Underlying Economic Activity”, in the Domestic Economy Chapter of the Central Bank of Ireland *Quarterly Bulletin* No. 1, 2016.

⁵ For more details see “Box D: Corporation Tax Receipts in 2015”, in the Domestic Economy Chapter of the Central Bank of Ireland *Quarterly Bulletin* No. 1, 2016.

Box A Fig 1: Measures of Growth

Source: CSO and internal calculations.

Box B: The Impact of Brexit on the Short-term Outlook

By Irish Economic Analysis Division

The UK decision to leave the European Union (Brexit) will have a negative impact on Irish GDP, employment and incomes. The key channels through which Brexit impacts the Irish economy include trade, foreign direct investment and the labour market. Under the most adverse scenario, where increased tariff and non-tariff barriers significantly reduce trade flows between Ireland and the UK, the level of Irish GDP could be over 3 percent below a no-Brexit baseline after ten years. A significant short-term impact is also likely. Adverse exchange rate movements together with a negative shock to foreign demand will reduce Irish export growth. Heightened uncertainty and financial market volatility in advance of formal UK exit negotiations could weaken investor and consumer confidence. These effects could then spill over into the labour market with negative consequences for employment and wages. Taking account of all of these factors, the forecast for Irish GDP growth has been revised down by 0.2 per cent in 2016 and by 0.6 per cent in 2017, compared with a no-Brexit baseline. These estimates are tentative and reflect the unprecedented nature of recent developments and the uncertainty surrounding the nature of the post-Brexit regime. It is likely that a significant amount of downside risk remains reflecting potentially large spillovers to trading partners, particularly in Europe, and the possibility of more acute confidence effects on investment and consumption decisions.

The economic impact of Brexit will depend on the nature of the UK relationship with the European Union (EU) following a UK departure. Three possible scenarios can be considered. The best case (considered very unlikely given UK revealed preferences) envisages a Norwegian-type solution whereby the UK becomes a member of the European Economic Area (EEA). Under this scenario, the long term economic impact would be minimal since it would largely mimic the current regime. A second scenario envisages a bilateral trade agreement between the UK and the EU along the lines of the EU/Swiss trade agreements. The worst case is where the UK and EU do not conclude a bilateral trade agreement and instead, the UK exercises its rights under the Most Favoured Nation (MFN) clause of the World Trade Organisation (WTO). Under this scenario there is likely to be a marked negative impact on UK trade and investment which in turn leads to a significant negative impact on the European economy and on Ireland in particular.

Analysis published by the UK treasury⁶ pointed to potentially severe effects on UK GDP over a 15 year period ranging from -3.8 per cent (EEA scenario) to -6.2 per cent (negotiated bilateral agreement) to -7.5 per cent (WTO outcome).

In the Irish case, model based scenario analysis carried out within the Bank in advance of the referendum vote using a Bayesian Vector Autoregression (BVAR) approach considered a worst case (WTO) scenario with no bilateral trade agreement between the UK and the EU. Using this approach, the estimated impact on the level of Irish GDP after 10 years (relative to the no-Brexit baseline) would result in a 3.2 per cent decline under the adverse scenario (Table 1). In terms of assessing the short-term impact, we make the assumption that the most likely outturn will closely resemble developments in the first two years under the adverse scenario. This is done to take account of the higher level of uncertainty and disruption generated, particularly in terms of financial market impacts and sentiment.

Table 1: Macroeconomic Estimates of Brexit Impact (levels)

	Deviation after 10 years
<i>World Demand</i>	-2.8
<i>Exports</i>	-5.5
<i>GDP</i>	-3.2
<i>Wages</i>	-4.4
<i>Employment</i>	-1.8

⁶ See: <https://www.gov.uk/government/publications/hm-treasury-analysis-the-long-term-economic-impact-of-eu-membership-and-the-alternatives>.

Box B: The Impact of Brexit on the Short-term Outlook By Irish Economic Analysis Division

The short-term outlook for the Irish economy was then revised bearing in mind these estimates. The results are summarised in Table 2. Reflecting the mid-year timing of the referendum, the estimated negative impact on the growth rate this year is comparatively small at 0.2 per cent. However, a more significant impact is expected in 2017 with the growth rate lowered by 0.6 per cent. This arises from a less favourable outlook for exports.

Table 2: Short-term Impacts of Brexit on Growth in Ireland

	2016	2017
GDP	-0.2	-0.6
Consumption	-	-0.1
Investment	-0.1	-0.5
Government	-	-
Exports	-0.4	-1.0
Imports	-0.3	-0.9
Balance of Payments, % GDP	-0.1	-0.1
Labour Market		
Employment	-0.1	-0.2

Demand

Domestic Demand Overview

Despite the uncertainty created following the UK referendum, domestic demand is expected to drive growth over the projection period. The outlook for consumption and investment spending remains robust although growth rates will moderate. Economy wide domestic demand is expected to grow by 6.4 per cent in 2016 and by 3.4 per cent in 2017.

Consumption

Personal consumption expenditure is forecast to grow by 4.0 per cent in 2016 and by 2.3 per cent in 2017. This builds on a very strong outturn in 2015 - volume growth of 4.5 per cent (a significant upward revision from the preliminary estimate) - based on the recently released NIE. The forecasts are driven by a positive outlook for the labour market, incomes and a projected decline in the household savings ratio.⁷ Spending continues to be supported by an element of pent up demand within the economy, as evidenced by strong

retail sales and car licensing/registration data in the first half of the year.⁸

Given the large share of consumption in domestic demand, the response of consumers to the uncertainty surrounding Brexit will have a bearing on growth. The consumption scenario outlined in Box B is largely driven by second round effects (from the shock to trade) on employment and incomes with no direct impacts arising from weaker sentiment. However, a decline in sentiment arising from Brexit related uncertainty and/or contagion to other economies is a clear downside risk to the consumption outlook. There have been periods when UK and Irish consumer sentiment move together – for example in response to global shocks such as those during the financial crisis in 2008/09 – as well as periods when they do not move together – such as in the early 1990s. If a large drop in consumer sentiment is assumed, then the effects on consumption would be more severe. For 2016, the impact of the Brexit referendum on consumer spending is likely to be modest with risks to

⁷ For more details on the links between consumption and employment see "Box B: Driver of Personal Consumption – A BVAR Approach", in the Domestic Economy Chapter of the Central Bank of Ireland *Quarterly Bulletin* No. 2, 2016.

⁸ There were 97,490 new private cars licenced in the first half of the year, an increase of 23.9 per cent on what was recorded over the same period in 2015.

the downside in 2017 given the potential for weaker sentiment.

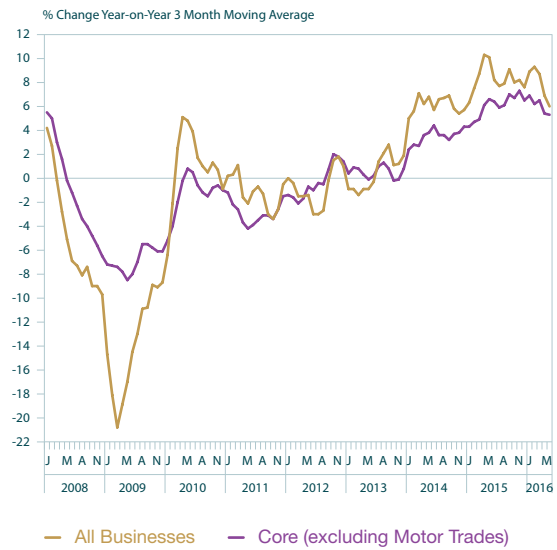
The latest consumption data have been very positive. The *Quarterly National Accounts (QNA)* figures for the first quarter reported seasonally adjusted growth in consumer spending of 2.1 per cent coupled with an upward revision to the 2015 growth rate (from 3.5 to 4.5 per cent). The latest retail sales data point to a 7.9 per cent increase in the volume of sales to end-May, with core sales (i.e. sales excluding motor trades) up 5.8 per cent. Indirect tax receipts in the first half of the year are also consistent with robust consumer spending with strong increases recorded (notably for excise duties). The KBC Bank Ireland/ESRI consumer sentiment index improved in June following a weak reading in May. However the survey was carried out prior to the Brexit referendum with the upturn reflecting positive employment developments.

Investment

Investment expenditure is forecast to grow by 12.3 per cent in 2016 and by 6.1 per cent in 2017. The impact of the Brexit decision will be felt in the investment figures in the latter part of this year but more so in 2017. This is likely to materialise through either delayed or lower levels of equipment investment. In light of the current shortage of residential (and commercial) properties, any impacts on the construction sector in the short-term are deemed to be minimal.

As indicated in previous *Bulletins*, the inclusion of intellectual property (IP) assets and the change in aircraft leasing arrangements in gross fixed capital formation adds considerably to the unpredictability of investment data. Investment in ‘intangible’ assets (generally in the form of a purchase of a licence or patent) amounted to over €23 billion in 2015 – an increase of over 100 per cent in the year. While this was most likely related to the reorganisation of activities by a limited number of multinationals, it represents a non-negligible proportion of overall investment (43 per cent) and adds considerable noise to the overall investment figures. The strength in IP investment helped to drive the overall level

Chart 2: Index of Volume of Retail Sales



Source: CSO.

of investment back to levels not seen since prior to the crisis. Abstracting from aircraft and IP related assets, underlying investment registered strong growth in 2015 (by 11.5 per cent) reflecting higher levels of construction and equipment investment.

On the construction side, housing output is expected to increase to 15,000 and 18,000 units in 2016 and 2017, respectively. This follows completions of 12,666 units in 2015. Further large increases in supply will be needed to satisfy current and future housing demand. On the non-housing side, building and construction registered an increase of 13.5 per cent in 2015. With current available supply of commercial space dwindling, and a strong pipeline of incoming investments, commercial real estate construction is projected to increase strongly over the projection period. Taking all of these factors into account, overall building and construction investment is projected to increase by 8.5 per cent on average per annum in 2016 and 2017.

On the machinery and equipment side, the trend – net of aircraft – continues to be one of re-stocking and new investment, with projected annual increases of 3 per cent

Table 1: Expenditure on Gross National Product 2015, 2016^f and 2017^f

	2015			2016 ^f			2017 ^f
	EUR millions	volume	price	EUR millions	volume	price	EUR millions
Personal Consumption Expenditure	92,377	4.0	1.0	96,986	2.3	1.1	100,308
Public Net Current Expenditure	26,985	2.3	1.1	27,932	1.6	1.6	28,817
Gross Domestic Fixed Capital Formation	54,103	12.3	2.0	62,004	6.1	2.2	67,221
<i>Building and Construction</i>	14,243	8.6	2.8	15,893	8.4	3.4	17,810
<i>Machinery and Equipment</i>	16,365	18.9	1.5	19,750	1.6	1.5	20,371
<i>Intangibles</i>	23,495	10.0	2.0	26,361	8.0	2.0	29,040
Value of Physical Changes in Stocks	1,293			1,293			1,293
TOTAL DOMESTIC DEMAND	174,758	6.4	1.2	188,215	3.4	1.5	197,639
<i>of which: Underlying Domestic Demand</i>	143,774	4.0	1.3	151,484	2.9	1.5	158,093
Exports of Goods & Services	317,197	6.4	1.2	341,340	4.5	1.3	361,106
FINAL DEMAND	491,955	6.4	1.2	529,555	4.1	1.4	558,745
Imports of Goods & Services	-235,987	8.0	0.8	-257,082	4.7	0.9	-271,386
<i>Statistical Discrepancy</i>	-155			-155			-155
GROSS DOMESTIC PRODUCT	255,813	4.9	1.5	272,318	3.6	1.8	287,204
Net Factor Income from Rest of the World	-53,173	6.1	1.2	-57,078	5.5	1.3	-60,996
GROSS NATIONAL PRODUCT	202,640	4.6	1.5	215,240	3.1	2.0	226,207

envisaged in 2016 and 2017, respectively. This component of investment is likely to be most affected by the Brexit decision with the potential for postponed or delayed investment decisions on account of uncertainty. In conjunction with the forecasts for building and construction, underlying investment (i.e., excluding intangibles and aircraft) is forecast to increase by 6.2 per cent per annum on average in 2016 and 2017.

Government Consumption

According to the NIE accounts, government consumption in 2015 increased in volume terms by 1.1 per cent. In the first quarter of 2016, spending grew by 3.5 per cent with growth of 2.3 per cent expected for the year as a whole.

In 2017, government consumption is expected to grow by 1.6 per cent.

External Demand and the Balance of Payments

Exports and Imports

Following the revisions to the NIE, the narrative about the Irish economy in 2015 has been completely transformed. Preliminary QNA pointed to domestic demand as the main growth driver last year with net exports accounting for a minimal 0.1 percentage point of overall GDP growth. Exports had performed strongly but were outpaced by a more rapid growth in imports. However following a dramatic upward revision to export growth

from 13.8 per cent to 34.4 per cent and a significant but less sizable upward revision in imports, net trade now accounts for over half (13.5 percentage points) of total GDP growth in 2015.

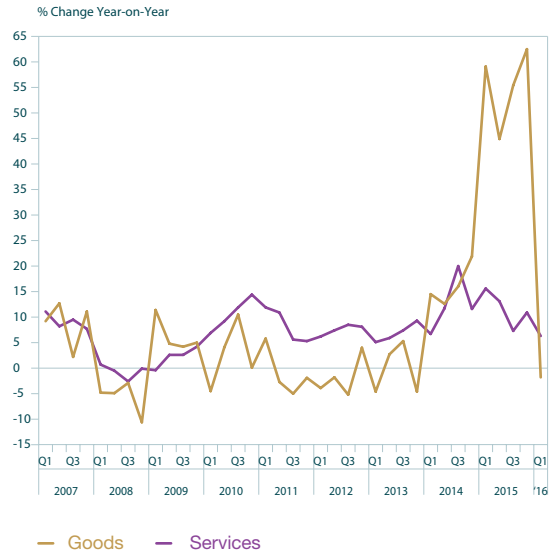
On the export side, the largest revision was for goods exports where the rate of increase in 2015 was revised to 55.4 per cent from 17.2 per cent. This was boosted by contract manufacturing abroad on behalf of multinational firms, including recently redomiciled firms located here. There was a more modest revision to the recorded increase in services exports from 10 per cent to 11.5 per cent last year. This was accounted for in the main by strong growth in financial services, insurance, operational leasing and computer services exports.

The forecasts for exports and imports imply a small, albeit positive contribution to growth this year from net trade of 0.5 per cent, rising to 1.2 per cent in 2017.

The revision to the trade figures in 2015, were almost all accounted for by a very large once-off level shift in the first quarter of 2015 reflecting a reclassification of transactions previously accounted for abroad. Accordingly, the revisions point to a change in the level of exports rather than in the rate of growth with little or no implications for the growth outlook thereafter. However, Brexit is a significant event which will have implications for the outlook and we have revised our projections for GDP growth to take this into account (see Box B).

The trade outlook is likely to be most affected by the Brexit referendum given the prospect of weaker demand and higher levels of uncertainty. On the export side, a projected moderation in line with expected developments in external demand has been further downgraded, particularly in 2017. Exports are projected to grow by 6.4 and 4.5 per cent in 2016 and 2017, respectively. Growth in imports is also projected to ease to 8.0 per cent in 2016 and 4.7 per cent in 2017 reflecting both the trend in exports and

Chart 3: Volume of Exports



Source: CSO Quarterly National Accounts.

a projected slowing in the pace of domestic demand growth.

Net Trade, Factor Incomes and International Transfers

In 2015, the revisions to export and import volumes had a dramatic impact on the trade balance which increased to €81.2 billion or 31.7 per cent of GDP (from a preliminary estimate of €44.7 billion). Taking account of the forecasts above, the trade balance is forecast to ease to 31.3 per cent of GDP by 2017.

Net factor income outflows in 2015 were revised significantly upwards last year contributing to a significant divergence between GDP and GNP. However, the changes in net factor flows were dwarfed by the changes on the trade side and as a consequence there was a very dramatic upward revision to the estimated Balance of Payments surplus last year to 10.2 per cent of GDP.

Table 2: Goods and Services Trade 2015, 2016^f, 2017^f

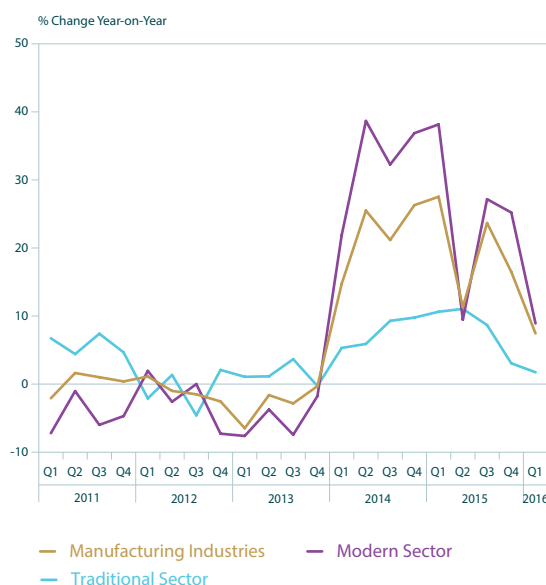
	2015		% change in		2016 ^f		% change in		2017 ^f	
	EUR millions	volume	price	EUR millions	volume	price	EUR millions			
Exports	317,197	6.4	1.2	341,340	4.5	1.3	361,106			
Goods	195,592	7.0	0.6	210,539	4.6	0.8	221,992			
Services	121,605	5.5	2.0	130,801	4.3	2.0	139,115			
Imports	235,987	8.0	0.8	257,082	4.7	0.9	271,386			
Goods	85,024	8.7	0.4	92,782	4.4	1.0	97,875			
Services	150,963	7.6	1.1	164,300	4.8	0.8	173,512			

Taking account of the projected composition of growth in 2016 and 2017 with a less significant contribution from net exports, the Balance of Payments is forecast to decrease to 9 per cent of GDP in 2017.

Supply

On the output side, the latest QNA data confirm a strong performance in the first three months of the year. On the services side, the broad other services sector grew by 6.7 per cent year-on-year, with the distribution, transport, software and communications sector and public administration up 2.6 and 5.6 per cent, respectively over the same period. The performance of the services sector remains robust and consistent with the underlying growth picture. The industrial output data in the QNA are heavily affected by the statistical issues listed in Box A as evidenced by the 87.3 per cent estimated growth in 2015. In the first quarter, industrial output growth of 1.8 per cent was recorded. The agricultural sector continued to perform very strongly with growth of 10.4 per cent in the first three months of the year.

The most recent data from the monthly industrial production and turnover series showed strong industrial output growth in the first five months of the year (up 6.2 per cent), although the pace of growth has slowed. Manufacturing output was up 6.8 per cent largely on account of activity levels within the modern manufacturing sector. Output levels in the more traditional (and predominantly

Chart 4: Volume of Industrial Production

Source: CSO.

indigenous) sectors have been much weaker thus far in 2016, with output effectively flat in the year to end-May. This could be due to more challenging trading conditions in the weeks preceding the Brexit referendum.

On the services side, the latest monthly services index reported growth of 5.8 per cent in the year to end-May (relative to growth of 6.8 per cent over the same period in 2015). The Investec PMI data for manufacturing rose in June to 53 from 51.5 in May. The PMI for services, while still positive, showed a slight fall

Table 3: Balance of Payments 2015, 2016^f, 2017^f

€ million	2015	2016 ^f	2017 ^f
Trade Balance	81,209	84,257	89,720
Goods	110,568	117,757	124,117
Services	-29,359	-33,500	-34,397
Net Factor Income from the Rest of the World	-51,914	-57,078	-60,996
Current International Transfers	-3,139	-3,139	-3,139
Balance on Current Account	26,156	24,041	25,585
(% of GDP)	10.2	8.8	8.9

to 61.2 from 61.7 in May. However, it should be noted that these surveys were conducted prior to the Brexit referendum.

The Labour Market

Employment growth of 2.1 per cent is anticipated in 2016 with growth of 1.3 per cent foreseen in 2017. With modest labour force growth expected, this should see further strong declines in the unemployment rate. The employment forecasts were revised downwards following the outcome of the Brexit referendum due to the risk of job losses in sectors more dependent on the UK (typically indigenous industries such as agri-food and tourism). The overall labour market outlook remains positive however with numbers at work expected to exceed 2 million persons in 2016.

The latest data from the *Quarterly National Household Survey* (QNHS) for the first quarter of the year showed continued strong gains in employment (+2.4 per cent year-on-year) with an additional 46,900 persons at work. Within this, 12 of the 14 sectors recorded gains with marked increases recorded in accommodation and food services, construction and administrative and support services. More recent labour market data from the CSO has also been positive with the seasonally adjusted unemployment rate at 7.8 per cent in June (down from 9.4 per cent in June 2015).⁹

Labour force growth has been weaker than expected with annual growth of 0.6 per cent in the first quarter based on the QNHS. In seasonally adjusted terms, the labour force

contracted by 0.2 per cent quarter-on-quarter in the first three months of the year, partly due to weak momentum in labour force participation. For the year as a whole, labour force growth of 0.4 per cent is anticipated with a pick up to 0.6 per cent in 2017 (Table 4). This outlook combined with the employment forecasts above should see further marked declines in the unemployment rate. The latter is expected to average 7.9 per cent in 2016 and 7.2 per cent in 2017. More generally, the current pace of employment growth and the marked rate of decline in unemployment highlights the need for stronger labour force growth (see Box C).

Pay

Wages are projected to increase on average by 2.5 per cent per annum in both 2016 and 2017. This outlook coupled with the forecasts for employment above give rise to projected increases in economy-wide compensation levels of close to 4 per cent per annum on average in 2016 and 2017. While there are signs of increasing wage levels across the economy, there could be downward pressures arising from the Brexit decision (and likely competitiveness concerns) in the context of a weak price environment.

Inflation

Consumer Prices

Despite the strength in the domestic economy, headline inflation remains subdued and the recent result of the Brexit referendum means that inflationary pressures are likely to remain

⁹ The live register declined for a 48th consecutive month in June to 305,600 persons, down 39,600 year-on-year.

Box C: Recent Labour Market Developments

Diarmaid Smyth¹⁰

Employment has rebounded robustly over the past few years, with an additional 160,000 persons at work since mid-2012 (up 9 per cent). With modest labour force growth (up 22,000 or 1 per cent) over the same period, the unemployment rate has declined markedly – from over 15 per cent to below 8 per cent in mid-2016. There has also been a notable decline in both short- and long-term unemployment (Figure 1). Since mid-2012 numbers unemployed have declined by 40 per cent (with a two-third/one-third split between long- and short-term categories). In the first quarter of the year, the short-term unemployment rate declined to 3.6 per cent with the long-term rate at 4.7 per cent.

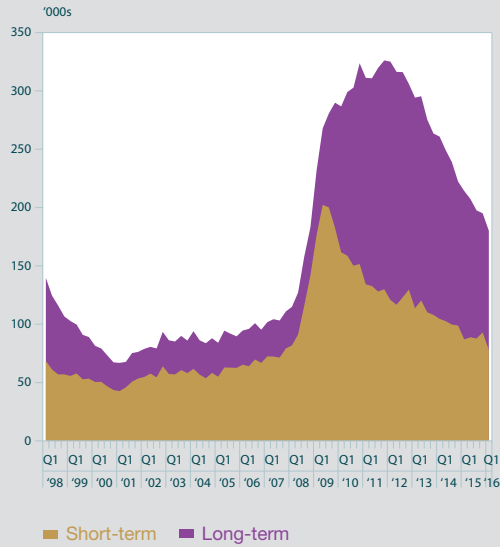
In Figure 2, the short- and long-term unemployment rates are shown alongside some reference rates from previously strong growth phases for context. The labour market forecasts in this *Bulletin* point to a short-term unemployment rate close to historically low levels by the end of the projection period. This serves to highlight the need for stronger labour force growth particularly in the event of skills mismatches between labour demand and supply.

From Figure 3, we can see that current labour force levels are well below the 2008 peak. While labour force growth has turned positive, the response to date has been relatively muted. This reflects in part a fairly static participation rate – this has remained close to 60 per cent in recent quarters. Recent research by the Bank highlighted the role played by structural and cyclical factors in determining the participation rate. While some upturn in participation can be expected given the stage of the cycle, structural factors are likely to act as a constraint going forward in the absence of a return to net inward migration.¹¹ The latter has been negative since 2009 but can be expected to turn positive over the forecast period given economic conditions.

¹⁰ Irish Economic Analysis Division.

¹¹ See “Understanding Irish Labour Force Participation”, Central Bank of Ireland Research Technical Paper 01RT16.

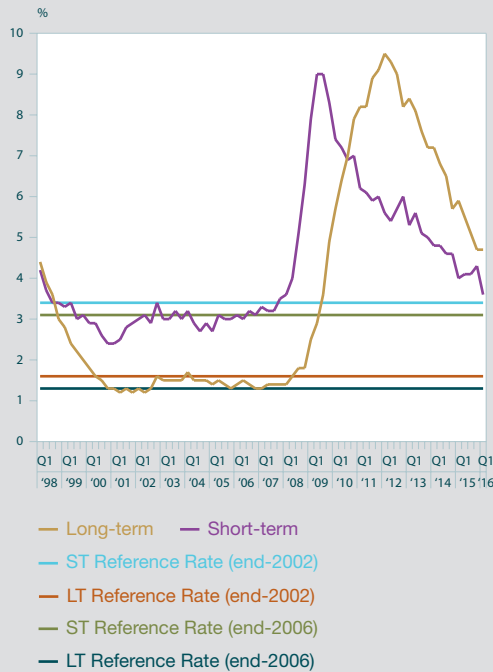
Box C Fig 1: Unemployment Decomposition



Source: CSO.

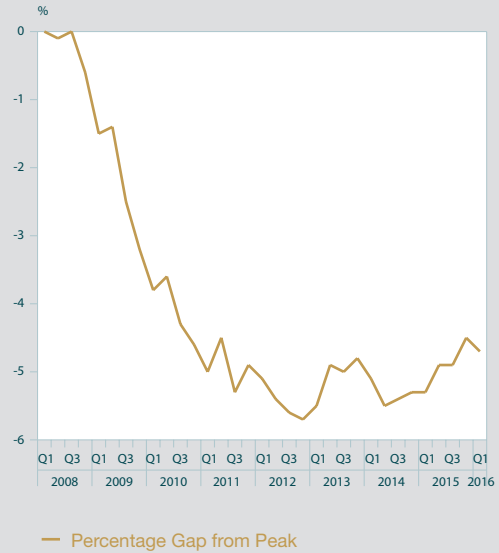
Box C: Recent Labour Market Developments
Diarmaid Smyth

Box C Fig 2: Unemployment Rates



Source: CSO.

Box C Fig 3: Labour Force: Gap from 2008 Peak



Source: CSO.

low for longer than anticipated. For the year as a whole, CPI and HICP inflation are expected to average 0.4 and 0.2 per cent, respectively (Table 5). These constitute downward revisions compared with the previous Bulletin and are attributable mainly to the weaker price pressures in the early part of the year, weak global commodity prices developments and a stronger exchange rate. Reflecting the strength in domestic demand, services inflation is projected to average 2.8 per cent this year, while goods prices are set to decline by 2.6 per cent due to lower energy, industrial goods and processed food prices. Looking to 2017, some pick-up in inflation is envisaged, driven mainly by a recovery in the goods component, as the moderating influence of external factors seems set to wane. CPI and HICP inflation are forecast to average 1.5 and 1.4 per cent in 2017, respectively.

On the currency front, following the UK referendum there were offsetting movements in the value of the euro against the pound sterling

and the US dollar. Following a slight decline, the euro has since recovered against the dollar; the euro is now stronger against both the pound sterling and the dollar (our main trading partners) compared to the previous *Bulletin*. All else being equal, a rise in the value of the euro serves to decrease the euro price that foreign producers selling in Ireland need to charge to maintain profits in their own currency. Since the last *Bulletin*, the technical assumptions underlying the forecasts with regard to the US dollar and the pound sterling are approximately 1.8 and 7.7 per cent higher, respectively. This could add to the deflationary impact of low global commodity prices over the projection horizon.

Residential Property

Residential property prices increased by 10.6 per cent in 2015, although the rate of growth moderated significantly as the year progressed. Data for January to May 2016 points to a slight pick-up in the pace of growth compared to

Table 4: Employment, Labour Force and Unemployment 2014, 2015, 2016^f and 2017^f

	2014	2015	2016 ^f	2017 ^f
Agriculture	109	110	110	110
Industry (including construction)	348	374	386	394
Services	1,459	1,481	1,509	1,527
Total Employment	1,917	1,964	2,005	2,031
Unemployment	240	203	171	158
Labour Force	2,157	2,167	2,176	2,189
Unemployment Rate (%)	11.1	9.4	7.9	7.2

Note: Figures may not sum due to rounding.

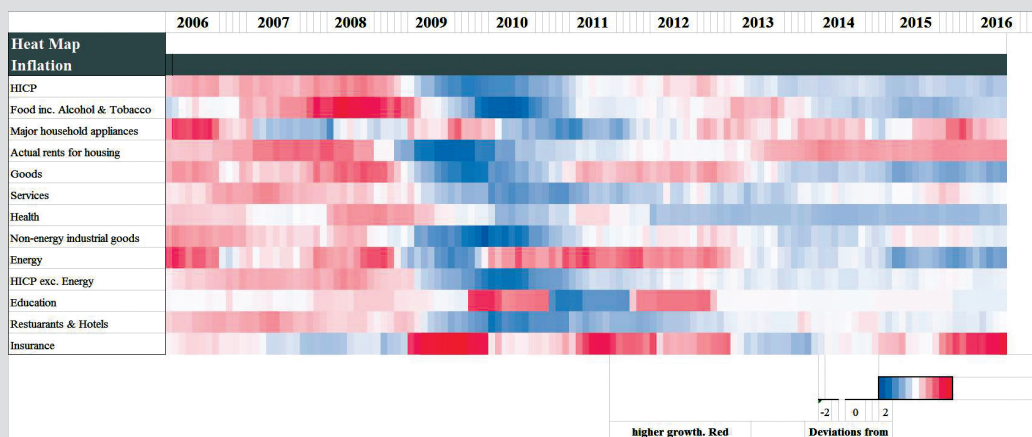
Box D: An Inflation Heat Map for Ireland

John Scally and Diarmaid Smyth¹²

Inflationary pressures in Ireland have been muted for a sustained period of time with the Harmonised Index of Consumer Prices (HICP) below 2 per cent since late 2012 and even slightly negative in 2015. To date in 2016 (as outlined above) prices have declined in four of the first six months of this year. The absence of aggregate inflation in the presence of very robust and sustained growth, while counter intuitive, largely reflects the fact that Ireland is a price taker on international markets. In particular, the current weakness in consumer prices is heavily influenced by global price developments, particularly oil and energy price declines. In total, energy prices account for a significant weighting in the HICP – at 8.8 per cent.

To get a better feel for underlying inflationary pressures, a heat map (building on the work presented in the previous Bulletin) has been developed for the HICP and twelve large sub-components (Figure 1).¹³ The map is a quick and efficient tool for monitoring price developments and is particularly useful in highlighting areas where price pressures are most (or least) prominent. The map's shadings are determined by the number of standard deviations from the mean for each component. A growth rate two standard deviations below the mean is assigned the darkest blue, while the growth rate two standard deviations above the mean is shaded the darkest red. Observations within a standard deviation of the mean are shaded neutral. It should be noted, however, that a blue reading does not necessarily mean that absolute prices are falling – prices may in fact be rising but are still below the historical mean rate of inflation.

Fig 1: Inflation Heat Map



¹² Irish Economic Analysis Division.

¹³ See Box A: "A Macroeconomic Heat Map for Ireland", in the Domestic Economy Chapter of the Central Bank of Ireland Quarterly Bulletin No 2, 2016.

Box D: An Inflation Heat Map for Ireland

John Scally and Diarmaid Smyth

From Figure 1, the weakness in the headline HICP since late 2012 is apparent. Even abstracting from energy price declines (e.g. HICP exc. Energy), price pressures remain muted. Global commodity price movements feed into inflation directly via energy prices and indirectly (to non-energy goods) as cost bases decline. The lack of price pressures across the main sub-components in the first half of this year appears to be fairly pervasive, particularly for goods and energy components. However, a number of sub-categories within the HICP are reporting price pressures, specifically rents, major household appliances and insurance. Typically, it is the service sectors and areas where Ireland is not a price taker on international markets that are registering the strongest pressures. This is also consistent with other data sources including strong rent increases in the residential property market and above average increases in insurance products such as car insurance. There is also anecdotal evidence that residential building costs remain above house price inflation due to high fit-out costs; this is highlighted in the heat map by higher than average increases in major household appliances.

Table 5: Inflation Measures - Annual Averages, Per Cent

Measure	HICP	HICP excluding Energy	Services ^a	Goods ^a	CPI
2012	1.9	1.0	2.0	1.9	1.7
2013	0.4	0.5	1.6	-0.6	0.5
2014	0.2	0.6	2.5	-1.9	0.2
2015	0.0	1.0	3.0	-3.0	-0.3
2016 ^f	0.2	0.8	2.8	-2.6	0.4
2017 ^f	1.4	1.2	2.8	-0.2	1.5

^a Goods and services inflation refers to the HICP goods and services components

the end of 2016, with annual increases of 6.9 per cent. Diverse regional patterns persist in the dynamics of residential property prices, with prices in Dublin currently increasing at 4.8 per cent, while prices outside Dublin are rising by 8.5 per cent. Apartment prices in Dublin fell by 1.1 per cent in the year to May - the first annual decline since May 2013. However, it should be noted that apartment prices generally suffer from greater volatility than house prices due to low volumes of observed transactions.

Commercial Property

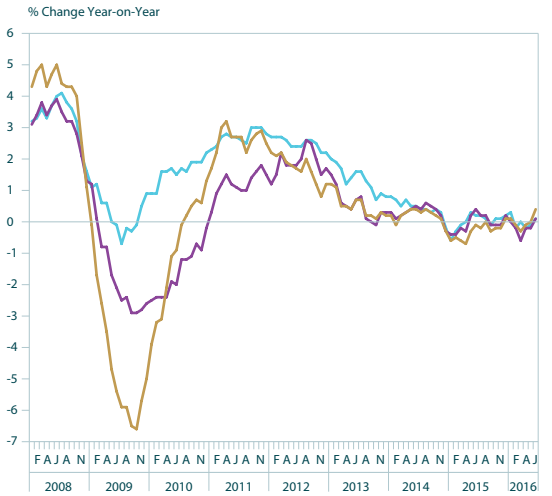
The latest data from the MSCI/IPD show that commercial property prices continued to grow at a robust pace in the first quarter of 2016. On an annual basis growth was strong across all sectors with the office, retail and industrial sectors recording increases of 18.9, 15.4 and 15.1 per cent, respectively. Overall commercial property prices increased by 17.7 per cent. These data are corroborated by the Jones Lang Lasalle property index which pointed to

capital increases of 18.5 per cent. The lack of capacity in the construction sector is likely to add to capital and rent increases in 2016. The Bank's latest Macro Financial Review (June 2016) conducts a detailed analysis of recent developments in the commercial property sector.

Competitiveness

The uncertainty in the run up to the Brexit referendum contributed to a weakening in the sterling/euro exchange rate. By early July, the euro had appreciated by 14 per cent relative to the pound sterling since the beginning of the year. The euro to pound exchange rate reached 0.853 in July, the highest level since October 2013. Much of this appreciation can be attributed to Brexit with an 8.9 per cent increase seen in the days following the referendum. The euro has appreciated by 2.3 per cent relative to the US dollar since the beginning of the year.

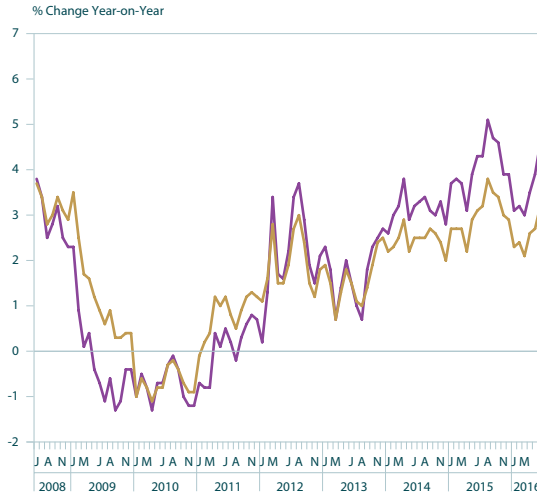
Chart 5: Consumer Prices



- Ireland: Consumer Price Index
- Ireland: Harmonised Index of Consumer Prices (HICP)
- EA-19: Monetary Union Index of Consumer Prices (MUICP)

Source: CSO.

Chart 6: Services Sector Inflation

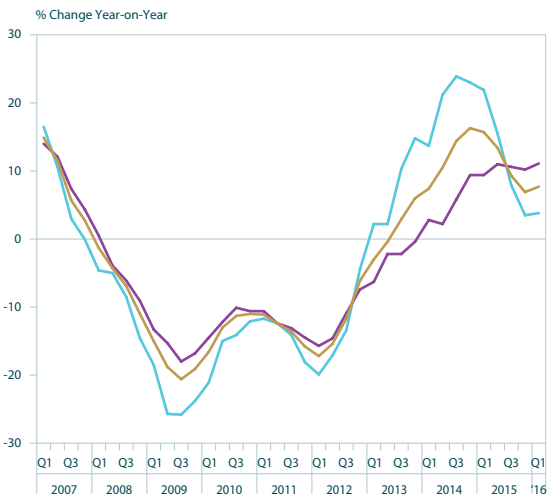


- HICP Services (Overall)
- HICP Core Services

Note: Core Market Services equals HICP services excluding telecommunications, alcohol and administered services.

Source: CSO.

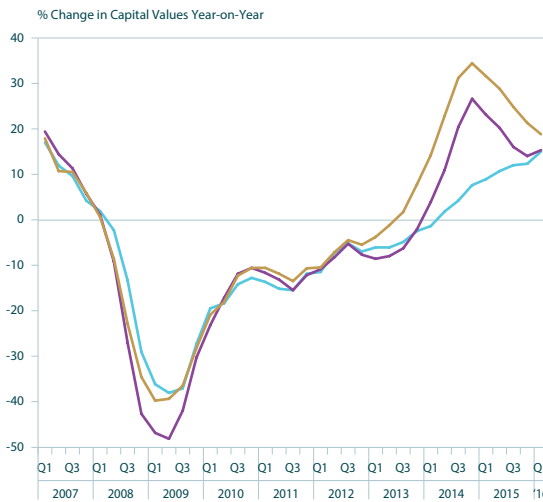
Chart 7: Residential Property Price Indices



- National – All Residential Properties
- National Excluding Dublin – All Residential Properties
- Dublin – All Residential Properties

Source: CSO.

Chart 8: MSCI/IPD Irish Commercial Property Index



- Office
- Retail
- Industrial

Source: MSCI/IPD.

Table 6: Annual Government Finance Statistics, 2010 to 2015 (% of GDP)

	2010	2011	2012	2013	2014	2015
Headline GG Deficit	-32.1	-12.6	-8.0	-5.7	-3.7	-1.8
Underlying GG Deficit	-13.2	-9.3	-8.0	-5.6	-3.7	-0.8
GG Gross Debt	86.3	109.6	119.5	119.5	105.2	78.7

Source: Department of Finance, Central Bank of Ireland Calculations

The latest Harmonised Competitiveness Index (HCI) data for June 2016 show that the nominal HCI appreciated by 2.5 per cent on a year-on-year basis. The real HCI increased by 1.4 per cent when deflated with either consumer or producer prices. These increases point to some loss of competitiveness. While these developments point to a less favourable situation for exporters, both the nominal and real HCI are trading at relatively low levels given recent history.

Based on the outlook for GDP and employment discussed above, annual average productivity growth of 2.8 and 2.3 per cent is forecast for 2016 and 2017, respectively. Factoring in likely developments in earnings, unit labour costs are projected to decline by 0.4 per cent in 2016 before rising by 0.2 per cent in 2017.

The Public Finances

Overview

A General Government deficit of 1.8 per cent of GDP is estimated for 2015 (down from 3.7 per cent in 2014) helped in no small part by the substantial upward revision to nominal GDP. This outturn was lower than had been anticipated even in spite of the fact that some AIB related share transactions were reclassified as deficit increasing capital transfers. Excluding these one-offs, the underlying deficit improved further to 0.8 per cent of GDP. Accordingly, the economy comfortably achieved its Excessive Deficit Procedure (EDP) target, and as a result exited the corrective arm of the Stability and Growth Pact. This is a notable achievement given the fiscal position that prevailed when Ireland entered the Financial Assistance Programme in late 2010 (see Table 6). The General Government debt ratio declined to 78.7 per cent of GDP in 2015 from 105.2

per cent the previous year. This decline was helped by the denominator effect, following the significant upward revision to GDP in 2015.

Exchequer Returns¹⁴

Exchequer data is currently available for the first half of the year. It reveals continued strong tax growth and marginally higher expenditure, with the overall outturn notably better than had been expected (see Table 7). This follows a significant Exchequer over-performance in 2015, which was largely driven by the rapid growth in corporation taxes.

Exchequer tax revenue grew by 9.2 per cent on an annual basis in the year to June, with strong gains across most tax categories. Income taxes were 5.6 per cent higher relative to the same period in 2015, consistent with the recovering labour market, solid employment growth and increases in average weekly earnings. Meanwhile, the other 'big four' tax heads - excise duties, corporation tax and VAT - were up by 29.2 per cent, 15.0 per cent and 3.7 per cent, respectively. Corporation tax is again performing well ahead of expectations, with the outturn more than €500 million above of profile in the first half of the year. The Government have signalled, however, that a significant portion of the over-performance in total taxes is being driven by large unexpected payments as well as timing issues, some of which are expected to unwind as the year progresses. Non-tax revenues declined in year-on-year terms, although this was mostly anticipated and primarily reflects lower dividends and Central Bank surplus receipts.

On the expenditure side, developments in current primary spending – which rose 0.9 per cent year-on-year – drove the overall modest increase in total spending. There were broad based savings across most departments

¹⁴ The figures in this section exclude transactions with no general government impact, giving a closer approximation to the General Government balance. These figures are provided by the Department of Finance in its Analytical Exchequer Statement.

Table 7: Analytical Exchequer Statement for June 2016 (€ millions)

	Jan-June 2016 €m	Jan-June 2015 €m	Annual Change (%)	Outturn vs Profile (%)
Revenue	29,516	27,958	5.6	3.7
– Tax revenue	22,523	20,622	9.2	3.4
– Appropriations-in-aid	5,505	5,318	3.5	1.4
– Other Revenue	1,487	2,018	-26.3	17.9
Expenditure	31,469	31,147	1.0	-0.8
– Current Primary Expenditure	26,068	25,841	0.9	-0.5
– Capital Expenditure	1,219	1,123	8.6	-3.2
– Interest on National Debt	4,182	4,183	0.0	-1.5
Exchequer Balance	-1,953	-3,189	38.7	39.8

Source: Department of Finance

Note: The figures in the Table exclude transactions with no general government impact, giving a closer approximation to the General Government Balance.

which came in below profile in June, although these were partly offset by developments in Health, where current spending was 2.1 per cent higher than anticipated and 5.5 per cent higher than the same period last year. Smaller EU Budget contributions had a favourable effect helping to contain spending in the first six months of the year. Capital spending increased in annual terms, primarily reflecting developments in Transport and Education, while interest spending was flat year-on-year. Overall, total spending was 0.8 per cent below profile in June.

In June the Government announced an increase of €540 million in the proposed government expenditure ceiling for this year. The majority of this – €500 million – will go to the Department of Health to deal with spending pressures, with the remainder allocated to the Department of Justice. This increase is consistent with the ¼ per cent of GDP in spending pressures that the Government noted could materialise in the *2016 Stability Programme Update* published in April.

Funding and Other Developments

The National Treasury Management Agency (NTMA) raised a further €1.5 billion through bond sales in the second quarter of the year, with auctions continuing to be oversubscribed. This brought the total raised to date in 2016 to €5.5 billion, and as a result the NTMA is comfortably on target to achieve its range of €6-10 billion for the year as a whole. The NTMA also cancelled a further €500 million in outstanding bonds linked to the liquidation of IBRC during this period. There has also been positive news on the ratings front, with Moody's upgrading Ireland's long-term sovereign credit rating to A3 (from Baa1) with a positive outlook. This recent upgrade now places Ireland in the A ratings category with all major credit rating agencies.

An Timpeallacht Gheilleagrach

Le scála na n-athbhreithnithe ar na sonraí Cuntas Náisiúnta agus le toradh an reifrinn sa RA maidir le ballraíocht na RA san Aontas Eorpach, cruthaítear fadhbanna ó thaobh measúnú a dhéanamh ar fheidhmíocht gheilleagar na hÉireann agus ar na hionchais do gheilleagar na hÉireann. I dtéarmaí na feidhmíochta eacnamaíche, cé gur tiomsaíodh na cuntais Náisiúnta loncaim agus Caiteachais ar bhonn caighdeán idirnáisiúnta, ní léiríonn siad an ghníomhaíocht eacnamaíoch iarbhir in Éirinn. Ina ionad sin, freagraíonn na forbairtí sin d'athlonnú staitistiúil na gníomhaíochta eacnamaíche a bhaineann le haistriú leibhéil ar mhéid stoc caipitiúil na hÉireann, rud a eascraíonn as athstruchtúrú corparáideach agus athaicmiú cláir chomhardaithe san earnáil ilnáisiúnta agus as fás ar ghníomhaíocht léasaithe aerárthaí (féach Bosca A, leathanach 11). Dá bhrí sin, cuimsítear sna sonraí Cuntas Náisiúnta méid an-suntasach gníomhaíochta a rinneadh in áit eile ach a taifeadadh go foirmiúil mar chuid d'OTI agus d'OTN na hÉireann.

Ní hamháin go ndéantar staid iarbhir an gheilleagair a shaobhadh leis seo, ach ina theannta sin, laghdaítear go mór an suntas a bhaineann leis na méadrachtaí a dhíorthaítear ó na tomhais sin, amhail na cóimheasa fioscacha éagsúla le OTI, tomhais an aschuir ionchasaigh, an bhearna aschuir, an t-easnamh struchtúrach agus an tagarmharc caiteachais. I gcás ceann de na tomhais is minice a úsáidtear i ndáil leis an seasamh fioscach, cóibheas easnamh an rialtais ghinearálta le OTI, áitítear anois, de thoradh luaineacht OTI, go ndíreofar sa ghearrthéarma ar an easnamh iarbhir i dtéarmaí ainmiúla, seachas a bheith ag brath go hiomlán ar an gcóibheas é féin nó ar sprioc maidir le heasnamh struchtúrach, agus ag an am céanna, go bhforbrófar tomhas suntasach arna choigeartú go timthriallach agus a bheidh iomchuí d'imthosca na hÉireann chun inmharthanacht fhioscach a thomhas. D'uireasa tomhais den sórt sin, ba cheart go ndéanfaí sprioc an rialtais chun comhardú struchtúrach a bhaint amach faoi 2018 a léirmhíniú mar sprioc chun comhardú an bhuiséid iarbhir a bhaint amach faoi 2018.

Ina theannta sin, leagann forbairtí Cuntas Náisiúnta béim ar leochaileacht ionchasach foinsí áirithe ioncaim de chuid an Státchiste, ar foinsí iad a bhfuil méadú tapa ag teacht orthu le déanaí, amhail fáltais ó cháin chorparáide ar tháinig méadú 50 faoin gcéad nach mór orthu i dtéarmaí bliain-ar-bhliain in 2015. Is léir ó sheantaithí an baol a bhaineann le spleáchas ar fhoinsí luaineacha, neamhbhuana ioncaim a d'fhéadfadh imeacht ar neamhní go tapa,

chun leibhéil ardaithe caiteachais phoiblí nó laghdaithe ar rátaí cánach a mhaoiniú, rud is doiligh a fhreaschur.

Cé go dtugann na sonraí Cuntas Náisiúnta le déanaí bréagléiriú ar fhás foriomlán na gníomhaíochta eacnamaíche intíre in Éirinn in 2015, tugtar le fios ó raon leathan táscairí caiteachais agus gníomhaíochta, ar táscairí iad atá níos iontaoifa, go leanann an ghníomhaíocht eacnamaíoch de bheith ag leathnú ar luas measartha sláintiúil. Leanann caiteachas tomhaltóirí de bheith ag fás ar luas measartha láidir, agus tá dlúthghnóthachain fostaíochta agus tuilleamh méadaitheach mar thaca leis an bhfás sin. Tháinig méadú 5 faoin gcéad nach mór ar an mbunéileamh intíre in 2015, ina gcuimsítear suim an chaiteachais phearsanta ar earraí agus ar sheirbhísí, an ghlancaiteachais rialtais ar earraí agus ar sheirbhísí agus ar infheistíocht, lena n-eisiatar infheistíocht in aerárthaí agus i sócmhainní doláimhsithe. I dteannta le fás 2.5 faoin gcéad ar fhostaíocht agus le fás 2.7 faoin gcéad ar chúiteamh in aghaidh an fhostaí, tugann sé seo le fios go raibh méadú 5 faoin gcéad, a bheag nó a mhór, ar ghníomhaíocht intíre.

Ar a shon sin, is neastacháin gharbha iad meastacháin den sórt sin agus, i bhfianaise an tsaofa a bhaineann anois le comhiomláin thraidisiúnta OTI agus OTN, is gá tomhas níos suntasaí a fhorbairt ar leibhéal iarbhir na gníomhaíochta eacnamaíche in Éirinn, ar tomhas é a bheidh comhaontaithe agus a fhreagróidh ar bhealach níos beaichte

d'fhorbairtí sa gheilleagar. Tá sé níos tábhachtaí fós go bhforbrófar tomhas den sórt sin i bhfianaise an ionchais a bhaineann le tuilleadh luaineachta i dtomhas traidisiúnta OTI, ag féachaint do thionchar méadaitheach an athstruchtúraithe chorparáidigh agus athaicmiú clár comhardaithe ar an gcomhiomlán seo.

Ag féachaint romhainn, beidh sé níos casta fós an t-ionchas don gheilleagar a mheasúnú de thoradh reifreann Brexit sa RA. Mar gheall ar an dlúthchaidreamh idir geilleagar na hÉireann agus na RA, tá neamhchosaint ar leith i gceist do gheilleagar na hÉireann ó Brexit. Sa ghearrthearma agus san fhadthearma araon, is cosúil go mbeidh iarmhairt eacnamaíoch dhiúltach ábhartha ag Brexit ar Éirinn. Tá sé deacair, áfach, an iarmhairt sin a chainníochtú go beacht. San idirthréimhse sula ndéanfar socruithe nua a bhunú idir an RA agus an AE, tá an fhéidearthacht ann go mbeidh tréimhse fhada éiginnteachta agus drogaill roimh rioscaí i gceist. Thairis sin, cuimsítear raon leathan torthaí féideartha sna socruithe fadtréimhseacha ionchasacha, sa chaoi gur doiligh an iarmhairt a chainníochtú. Ar a shon sin, is dócha go ndéanfaidh Brexit dochar do gheilleagar na hÉireann go cáilíochtúil, sa ghearrthearma agus san fhadthearma araon.

Beidh iarmhairt fhadtréimhseach Brexit ar Éirinn faoi thionchar chineál an chomhaontaithe imeachta idir an AE agus an RA agus fhorbairt an dá gheilleagar ina dhiaidh sin. Le cineál agus scála na hiarmharta maicreacnamaíche a bheidh faoi dheoidh ag Brexit ar gheilleagar na hÉireann, léireofar a mhéid a dhéanfaidh na socruithe imeachta difear do shaorghluaiseacht earraí, seirbhísí, caipitil agus saothair, arna héascú faoi láthair trí fheidhmiú Mhargadh Aonair an AE. Is iad trádáil, infheistíocht dhíreach choigríche agus margadh an tsaothair príomhchainéil éifeachtaí maicreacnamaíocha Brexit.

Sa ghearrthearma, eascraíonn na rioscaí ar an taobh thíos do gheilleagar na hÉireann go príomha as éifeachtaí ionchasacha maicreacnamaíocha, airgeadais agus mhargadh na n-airgeadraí a bhaineann leis an éiginnteacht bhreise i ndáil le Brexit a chur i bhfeidhm, rud atá fíor i gcás gheilleagar na RA agus gheilleagair eile na hEorpa freisin. Baineann gné thábhachtach den éiginnteacht sin le téarmaí an chaidrimh idir an RA agus an AE amach anseo, rud a bhaineann, i bpáirt, le ceisteanna i dtaobh cé chomh fada a

thógfaidh sé na téarmaí sin a chinneadh agus le hiarmhairt an chaidrimh nua.

In anailís a rinne an Banc Ceannais, tugadh le fios go mbeadh iarmhairt dhiúltach ag Brexit ar gheilleagar na hÉireann trí raon cainéal éagsúil (féach Bosca B, leathanach 13). Beidh scála na hiarmharta diúltaí seo ag brath ar a mhéid a theorannófar trádáil, soghluaiseacht saothair agus idirghníomhaíochtaí airgeadais i ndiaidh Brexit. Cé gur lú spleáchas na hÉireann ar an RA i dtéarmaí na trádála le scór éigin bliain anuas, is margadh fíorthábhachtach i gcónaí é an RA do ghnólachtaí dúchasacha. Leanann earnálacha áirithe, lena n-áirítear agrairbhia, éadach agus coisbheart agus turasóireacht de bheith measartha spleách ar onnmhairí chuig an RA agus, dá bhrí sin, d'fhéadfaí go ndéanfar difear díréireach dóibh.

Agus na cúrsaí sin á gcur san áireamh, tá athbhreithniú 0.2 agus 0.6 faoin gcéad anuas déanta ar fhás réamh-mheasta ar OTI na hÉireann do 2016 agus 2017 faoi seach i gcomparáid le bonnlíne neamh-Brexit. Ar an mbonn sin, agus faoi réir aon caveat thuasluaite maidir le tomhais thraidisiúnta Cuntas Náisiúnta, meastar go dtiocfaidh méadú 4.9 faoin gcéad i mbliana agus méadú 3.6 faoin gcéad in 2017 ar OTI. Meastar go dtiocfaidh méadú 4 faoin gcéad nach mór ar an mbunéileamh intíre agus dlúthghnóthachain fostaíochta mar thaca leis. Meastar go moilleoidh an méadú sin go dtí 3 faoin gcéad in 2017. Freagraíonn an moilliú sin d'iarmhairt réamh-mheasta tosca a bhaineann le Brexit.

D'ainneoin na n-athbhreithnithe anuas, tá an t-ionchas do gheilleagar na hÉireann fabhrach a bheag nó a mhór, agus meastar go dtiocfaidh laghdú breise ar dhífhosatíocht. Ar a shon sin, is léir gur rioscaí ar an taobh thíos iad na rioscaí do na réamh-mheastacháin, rud a léiríonn an fhéidearthacht go mbeidh iarmhairt níos contrártha ar gheilleagar na RA, go mbeidh iarmhairt níos mó ar an ngeilleagar idirnáisiúnta nó go mbeidh an mhuinín intíre níos diúltaí agus éifeachtaí níos diúltaí ar mhargadh an tsaothair ná mar a cuimsíodh sna réamhaisnéisí. Ag féachaint do na rioscaí sin agus i bhfianaise an ionchais go mbeidh iarmhairt dhiúltach, ábhartha ag Brexit, ba cheart go ndíreofaí le beartais ar bhonn taca a chur faoin gcobhsaíocht agus ar éiginnteacht a laghdú.

Financing Developments in the Irish Economy

Overview

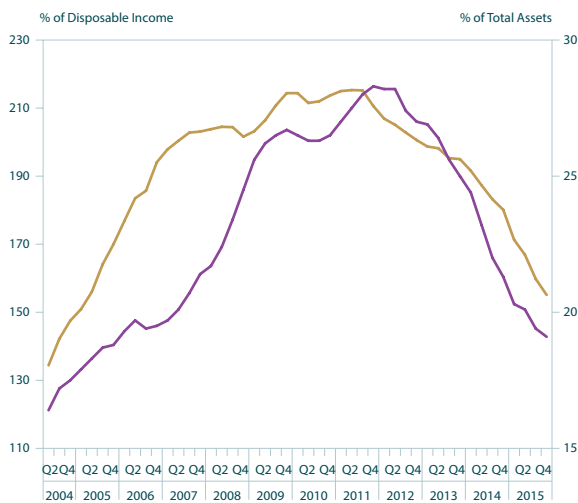
Financing conditions in the Irish economy have continued to improve since publication of the last *Quarterly Bulletin*. Economic growth, alongside an accommodative monetary policy stance at the European Central Bank, has resulted in a strengthened funding position for financial and non-financial firms. Deposits with Irish resident credit institutions grew marginally during the first five months of 2016, with strong inflows recorded for the non-financial corporation sector. Irish households continued to be net funders of the Irish banking system at end-May with deposits outstripping loans by some €6.4 billion. Moreover, Irish resident credit institutions' reliance on borrowing from the eurosystem fell to €8.3 billion in May 2016, down from €13 billion in May 2015.

The cost of borrowing for households and NFCs has fallen over recent months, though it remains the highest in Europe. In particular, there was a fall in the rate of interest on new loans to small and medium-sized enterprises (SMEs). Despite this, the Irish private sector continues to deleverage. Credit extended to both households and NFCs declined by 10 per cent year-on-year in Q1 2016. For households, repayments have exceeded new lending in each month so far this year while NFC repayments also exceeded new lending by €1.9 billion in May 2016. These developments suggest that GDP growth in the Irish economy over the past number of quarters has occurred in the absence of credit growth. A heat map outlining long-run trends in domestic credit and deposits is presented in Box B. This shows growth in deposits above long-run averages, and a slowdown in the pace of deleveraging.

The cost of borrowing for Government remains below historic averages despite increased uncertainty in the wake of the outcome of the UK's referendum on EU membership which, among other factors, has driven increased volatility in financial markets. These developments, alongside the performance of wider economic indicators have resulted in a continued decline in Irish sovereign bond yields since the last *Bulletin*.

The level of mortgage arrears, though improving, remains elevated. In particular, the number of accounts in arrears for more than 720 days remains a cause for concern.

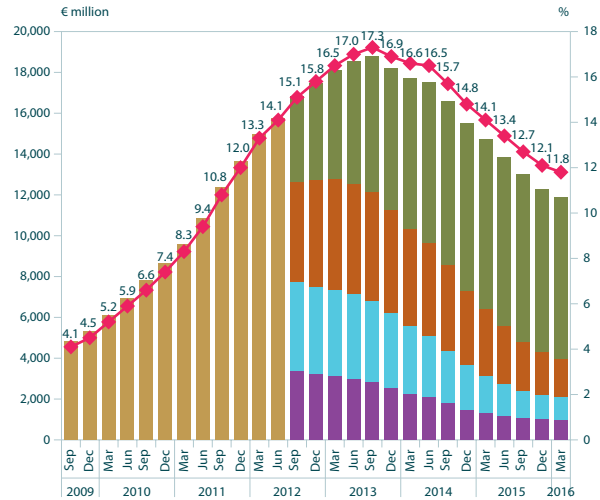
Chart 1: Household Debt Sustainability



— Debt to Disposable Income (LHS)
— Debt to Total Assets (RHS)

Sources: Quarterly Financial Accounts, Central Bank of Ireland; Quarterly National Accounts, CSO.

Chart 2: PDH Accounts in Arrears over 90 Days



■ Outstanding balance on accounts in arrears >90 days
■ Outstanding balance on accounts in arrears 91-180 days
■ Outstanding balance on accounts in arrears 181-360 days
■ Outstanding balance on accounts in arrears 361-720 days
■ Outstanding balance on accounts in arrears >720 days
◆ Value of accounts in arrears >90 days as a % of total (RHS)

Source: Residential Mortgage Arrears and Repossessions Statistics, Central Bank of Ireland.

Household Sector

Continuing growth in the Irish economy has been accompanied by improvements in the balance sheet of households as evidenced by data available since the latest *Quarterly Financial Accounts*¹. Q4 2015 saw a further reduction in the stock of household debt, which declined by 1.1 per cent, to €149.6 billion or €32,269 per capita. As a result, household debt is now at its lowest level since the first quarter of 2006. The decline over the quarter reflected net debt repayments of €1.1 billion and debt write-downs/write-offs of €600 million, which were slightly offset by statistical reclassifications of €100 million. Household debt has now declined continuously for the last 29 quarters and fallen by 26.6 per cent since its peak of €203.7 billion in the third quarter of 2008.

A rise in the value of housing assets drove a 1.4 per cent increase in household net worth² to €626 billion or €135,078 per capita in the fourth quarter of 2015. This increase also

reflected a €1.6 billion decline in household liabilities. Compared with a post-crisis low of €444 billion in Q2 2012, household net worth has risen by 41 per cent, but still remains 12.8 per cent lower than its pre-crisis peak of €718 billion in Q2 2007.

Indicators of household debt sustainability also improved, with debt as a proportion of disposable income standing at 155.1 per cent at the end of Q4 2015, down from 159.8 per cent in the previous quarter (Chart 1). In annual terms, debt as a proportion of disposable income fell by 25.1 percentage points over the year to 155.1 per cent. In spite of this however, Irish households remain the third most indebted in the European Union.

Household investment in financial assets increased further during Q4 2015 to €1.9 billion. This represented the highest level of investment in financial assets by households since Q3 2009. Chart 1 shows that household debt as a percentage of total assets now stands at 19.1 per cent, a fall of 0.4

¹ See the *Quarterly Financial Accounts* for further details.

² Household net worth reflects the sum of housing and financial assets minus financial liabilities.

percentage points compared with the previous quarter. The increase in financial assets over the quarter largely reflected transactions into deposits which have increased each quarter since Q1 2014. Households' financial investments continued to be primarily in the form of insurance technical reserves at end-2015.

The improvements in household balance sheets have been slow to translate into an upturn in the stock of loans to households. Loans to households (adjusted for loan sales and securitisations) by Irish resident credit institutions declined by 3.4 per cent in May 2016 compared with the same period in the previous year. Outstanding mortgage loans, which account for 83 per cent of on-balance sheet household loans, declined by 2.2 per cent year-on-year in May. Quarterly data shows that the declines in the stock of mortgage lending outstanding are more pronounced in the Buy-to-Let sector, which saw an annualised decline of 9.4 per cent in Q1 2016.³ One area of growth is within loans for consumption purposes, which grew by 0.5 per cent year-on-year in May 2016, the largest annual increase since 2009. This increase was driven by lending for more than one year and up to five years, which is typically directed at medium-sized purchases such as vehicles and holidays. If this trend persists, it may suggest that the growth in consumption seen in

indicators such as retail sales and new vehicle purchases may be beginning to filter through to lending data.

The number of mortgage accounts for principal dwelling houses (PDH) in arrears continued to fall in the first quarter of 2016, marking the 11th consecutive quarter of decline. Eleven per cent of mortgages were in arrears at end-Q1. Eight per cent of PDH mortgages were in arrears of more than 90 days, representing some 11,896 accounts, 66 per cent of which were in arrears more than 720 days (Chart 2). The level of long-term arrears, while falling, continues to be a cause for concern. An increasing number of mortgages in long-term arrears are now held by non-bank entities – the split between bank and non-bank entities is further explored in Box A.

The latest data available on interest rates showed that the cost of borrowing for households has continued to fall. At the end of May 2016, the interest rate on new floating rate mortgage loans was 3.12 per cent, a decline of 0.10 percentage points compared with the same period in the previous year. This rate is, however, 128 basis points higher than equivalent euro area rates.

Box A: Mortgage Arrears and the Role of Non-Bank Entities

By Jean Cassidy and Eoin O'Brien⁴

Mortgage arrears has been a prominent policy issue in Ireland for the past five years. At an aggregate level, arrears have been declining since mid-2013, reflecting the concerted resolution efforts of mortgage lenders and the Central Bank, as well as the recovery in the economy and the labour market. Banking sector deleveraging in recent years has also resulted in the disposal of mortgage assets, and it is now the case that a small, but not insignificant, number of mortgage accounts are held by non-bank entities. This Box explores the split of mortgage accounts between banks and non-banks, and highlights the disproportionately large share of arrears cases among the non-bank entities.

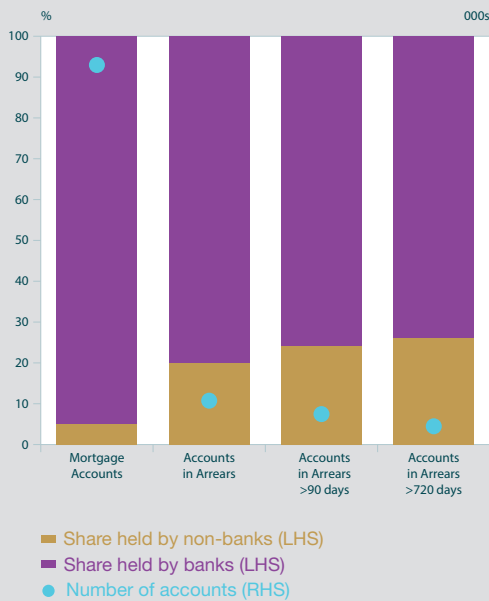
⁴ Statistics Division and Financial Stability Division, respectively.

³ A full breakdown of mortgage lending data is available in the [Trends in Personal Credit](#) release.

Box A: Mortgage Arrears and the Role of Non-Bank Entities

By Jean Cassidy and Eoin O'Brien

Box A Chart 1: Mortgage Arrears: Banks and Non-Banks



■ Share held by non-banks (LHS)
 ■ Share held by banks (LHS)
 ● Number of accounts (RHS)

Source: Residential Mortgage Arrears and Repossession Statistics, Central Bank of Ireland.

Box A Chart 2: Restructured Mortgage Accounts



■ Mortgage accounts - restructured
 ■ Mortgage accounts - not restructured
 ● Restructured accounts meeting new terms

Source: Residential Mortgage Arrears and Repossession Statistics, Central Bank of Ireland

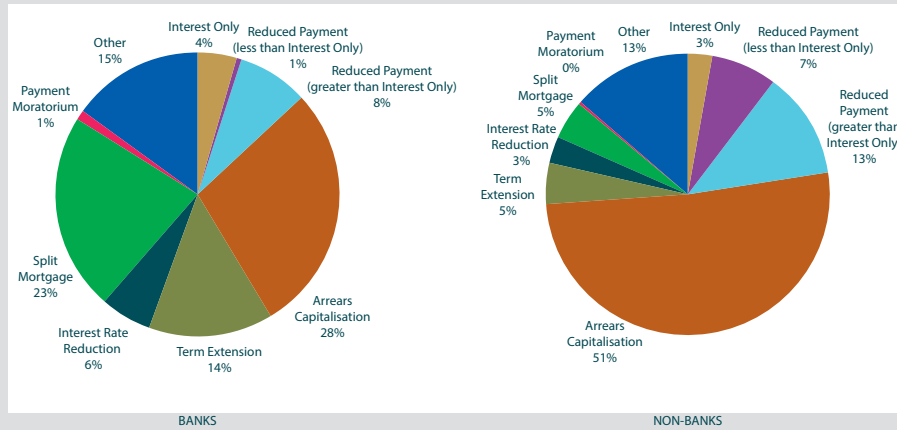
The data reported by non-bank entities as part of the Central Bank *Residential Mortgage Arrears and Repossession Statistics* include mortgage loans issued by a number of authorised retail credit firms. They also include mortgage loans issued by banks and subsequently sold to other entities, some of which are not currently regulated entities. According to the most recent statistics, unregulated entities accounted for just under 30 per cent of mortgage loans on principal dwelling houses (PDH) held by non-bank entities at end-March 2016. Their share of the overall PDH mortgage market was 1.5 per cent at that time.

Box A Chart 1 shows the breakdown of the number of mortgage accounts and mortgage arrears cases between banks and non-bank entities at end-March 2016. The first column shows that of the 743,700 outstanding PDH mortgage accounts, approximately 5 per cent are held by non-banks. Turning to arrears cases, of which there are 85,989 in total, about 20 per cent are now held by non-bank entities. This represents a much larger share than the proportion of mortgage accounts they hold, pointing to a significantly worse performance status of loans held by non-bank entities. Columns three and four of Box A Chart 1 show the breakdown of accounts in arrears of more than 90 days and more than 720 days, respectively. It is evident that an increasing share of these longer-term arrears cases is held by non-bank entities. In fact, over a quarter of very long-term arrears (i.e. more than 720 days) cases are held by non-banks.

Box A: Mortgage Arrears and the Role of Non-Bank Entities

By Jean Cassidy and Eoin O'Brien

Box A Chart 3: Restructured PDH Accounts by Restructure Type and Entity Type



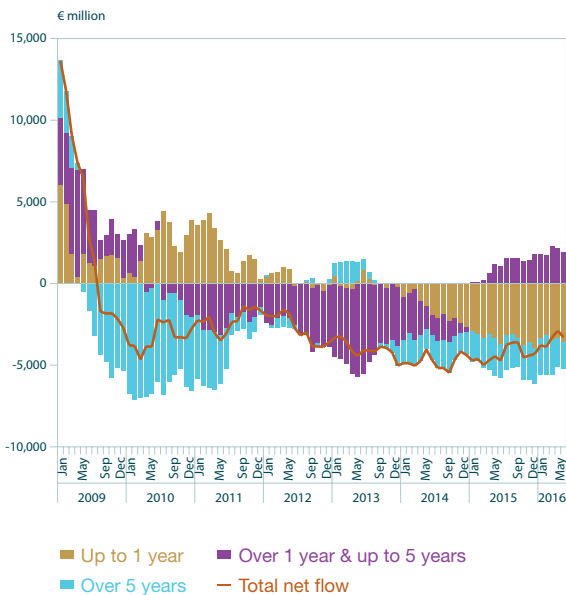
Source: Residential Mortgage Arrears and Repossession Statistics, Central Bank of Ireland.

Turning to the management of arrears cases, overall about 1 in 6 mortgage accounts has received some form of restructuring arrangement. The majority (circa 85 per cent) of these restructured accounts are meeting the terms of their new arrangement⁵. Box A Chart 2 looks at restructured accounts by type of entity. A mortgage account held by a non-bank entity is somewhat more likely to have been restructured than an account held by a bank – about 1 in 5 accounts as opposed to 1 in 6 accounts. A more significant difference is evident in terms of the performance of these restructured accounts. In the case of accounts held by banks, 88 per cent of restructured accounts are meeting the terms of the new arrangement. On the other hand, just 65 per cent of restructured accounts held by non-banks are meeting the new terms of the arrangement. Once again, this seems to suggest that accounts held by non-bank entities are those with a poorer repayment performance.

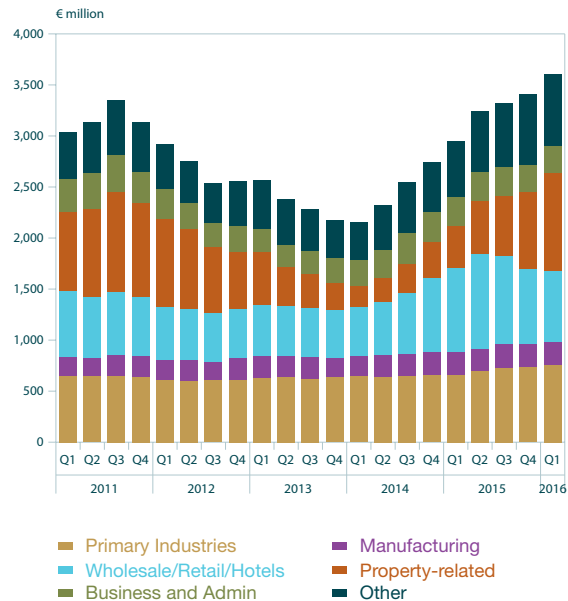
This poorer performance also reflects the type of restructuring activity undertaken by these entities. Restructure arrangements involving arrears capitalisation account for just over half of all restructured mortgage loans held by non-bank entities (Box A Chart 3). Just over one quarter of restructured accounts held by banks are in the arrears capitalisation category. The most recent aggregate statistics show that re-default rates are particularly high among this restructure type. At end-March 2016, only 77 per cent of accounts in the arrears capitalisation category were meeting the terms of their arrangement. This implies that 23 per cent had re-defaulted, i.e. the arrears balance had increased since the arrangement was put in place. Re-default rates are also high among reduced payment arrangements where the borrower is paying less than interest only. The lowest rates of re-default are among split mortgage restructures – a growing category among bank entities.

Despite any associated realisation of losses, the disposal of distressed mortgage loans is largely a positive development from the perspective of the Irish banks' balance sheets. To the extent that these loans have, for the most part, been transferred to foreign-owned entities not engaging in banking activities, the loans themselves are no longer an impediment to the issuance of new credit to the economy. From a consumer protection perspective, it is imperative that the resolution efforts undertaken by non-bank entities are monitored, to ensure that all borrowers receive fair and appropriate treatment, irrespective of where their mortgage loans are now held. Furthermore, these unresolved and deteriorating mortgage loans still signify a considerable debt overhang for the household sector. This continues to be a cause for concern, given the wider economic implications and the potential impact on aggregate household consumption and investment.

⁵ This means that the borrower is, at a minimum, meeting the agreed monthly repayments according to the terms of the restructure arrangement.

Chart 3: Loans to NFCs – Net Flows by Category of Original Maturity

Source: Money and Banking Statistics, Central Bank of Ireland.

Chart 4: Gross New Lending to SMEs by Sector (12 Month Moving Average)

Source: Business Credit and Deposits Statistics, Central Bank of Ireland.

Non-Financial Corporation Sector

After a contraction in the previous quarter, the upturn in global stock markets at the end of 2015 drove a return to growth in non-financial corporations' (NFC) balance sheets in Q4 2015, with financial assets increasing by 14.4 per cent and liabilities increasing by 12.4 per cent. The expansion in both assets and liabilities were driven by positive movements in the valuation of equities as well as corporate restructures.

The ratio of NFC debt-to-GDP declined in Q4 2015 by 2 percentage points to 157.2 per cent. The rise in NFC debt of €24.3 billion was more than offset by the increase in annualised GDP of €18.4 billion. Developments in NFC debt were primarily driven by increases in loans held by domestic other financial intermediaries (OFIs) of €21.8 billion while there was also an increase in loans held by non-residents of €6.7 billion. It is important to note that data for Ireland are heavily impacted by the large presence of multinational corporations. These

firms have little interaction with the domestic financial system, but have a significant effect on the level of NFC debt in Ireland. NFC loans held by domestic monetary financial institutions remained in decline, reflecting in part ongoing deleveraging by indigenous Irish firms particularly in the SME sector.

Lending by Irish resident credit institutions to NFCs declined on an annual basis in May 2016, falling by 6.8 per cent. There have been divergent trends in the different maturity categories however, with declines in both short (up to one year) and long (over five years) maturity loans (Chart 3). By contrast, medium-term (over one and up to five years) loans grew by 15.8 per cent year-on-year in May. This may indicate, as noted in previous *Bulletins* a reduced reliance on non-bank funding.⁶ Quarterly data on trends in business credit show that gross new lending to SMEs has continued to grow since early 2015, with €962 million drawn down in the 12 months to the end of Q1-2016. The recent increase in

⁶ Coates, D and A. Moloney (2016) 'Box A: Real Estate Investment Trusts and the Property Sector in Ireland', Central Bank of Ireland Quarterly Bulletin No.2

new lending has been driven by the primary industries and transportation sectors (Chart 4).

The cost of borrowing has remained broadly unchanged for Irish NFCs over recent months. The average cost of new NFC loans was 2.68 per cent in May 2016, an increase of 77 basis points compared with 12 months previously, and some 96 basis points higher than the equivalent euro area rate. By contrast, the average cost of borrowing for non-financial

SMEs has declined to 4.44 per cent in the first quarter of 2016, compared with 4.71 per cent in the same period last year. It is noteworthy, however, that this rate is higher than that applying to the outstanding stock of SME loans which average 3.06 per cent at end-Q1.

Box B: A Heat Map for Irish Private Sector Credit and Deposits

By Martina Sherman and Stephen Byrne⁷

The monthly and quarterly releases of Credit, Money and Banking Statistics by the Central Bank of Ireland provide detailed data on the liabilities and assets of Irish resident credit institutions, broken down by counterparty residency and institutional sector as well as by the type and maturity of the main asset and liability instruments.

One of the primary challenges for compilers of large datasets such as these is to present them in a manner that is easily understood by users. Data visualisation plays a key role in this regard. One visualisation method which has been utilised for financial data is a heat map, which facilitates the presentation of a large volume of data in matrix form with each tile shaded on a colour scale to represent the value of the corresponding element of the data matrix.⁸ In this Box we utilise the heat map to portray developments in bank credit and deposits vis-à-vis Irish households and non-financial corporations (NFCs).

In building the heat map,⁹ it is important to have consistent rules for determining the shading for each observation. Some approaches use economic theory or judgement or a mixture of both. However, in this case, the heat map shows whether the growth in credit being advanced to households and NFCs is high or low by historical standards.

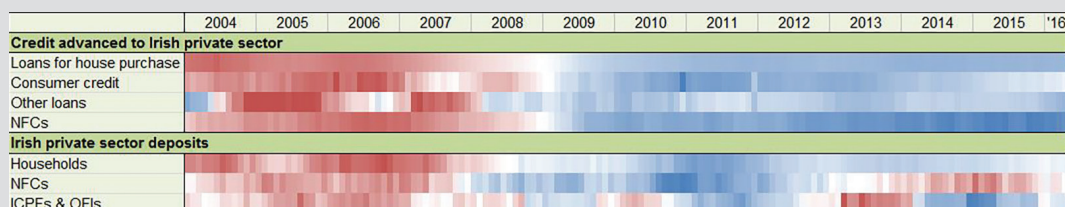
To do this, we use the longest available time-series for each variable and standardise the year-on-year growth rate for each month. The resulting series has a mean of zero and standard deviation of one. Using this standardised series, we assign colours to each observation depending on whether it is above the mean (>0) or below (<0). Numbers above (below) the mean receive a positive (negative) score of 1 if the observation is one standard deviation below the mean. As each new observation is added the mean and standard deviation are recalculated using the updated series.

Where relative growth rates are above the long-run mean, the series are colour-coded red while those below the long-run mean are colour-coded blue. Additionally, a darker shade corresponds to the value lying further from the long-run average of the individual series.

⁷ Statistics Division, Central Bank of Ireland.

⁸ See [Byrne and Smyth \(2016\)](#), for recent work on building an Irish macroeconomic heat map.

⁹ For a detailed description see [Wilkinson & Friendly \(2009\)](#).

Box B: A Heat Map for Irish Private Sector Credit and Deposits*By Martina Sherman and Stephen Byrne***Box B Chart 1: Household and NFC Credit and Deposits Heat Map**

Source: Table A.1 Money and Banking Statistics, Central Bank of Ireland.

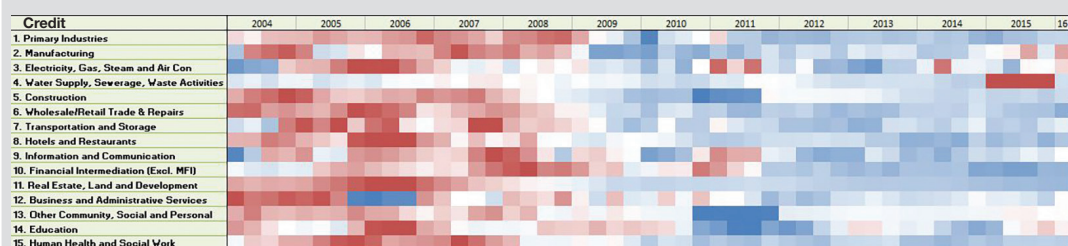
Note: ICPFs are insurance corporations and pension funds. OFIs are other financial intermediaries.

It is important to note that the heat map series are not calculated relative to each other, rather each value is relative to the long-run average of its own series. The darker red shade in the consumer credit series in 2006 is the result of these observations being above the long-run average growth rate for consumer credit.

The build-up of credit, as occurred in the Irish economy in the mid-2000s is considered an early warning indicator of imminent crises. The European Systemic Risk Board (ESRB) recommendations include the monitoring of credit growth, in addition to its main indicators, in identifying systemic risk build-up.¹⁰ Looking at Box B Chart 1, the growth in credit pre-2008 is clearly excessive compared to the average for the time period covered. Mortgage lending was at the highest above-average rate in 2004 and 2006, and remained at above average rates until a marked turning point in 2008. Similarly, consumer credit built up considerably until the end of 2006.

All lending series have been blue for the past several years, showing growth rates below long-run averages. This is indicative of on-going deleveraging, particularly by NFCs. It is only in the past few months that we see a shift emerging in consumer lending in the heat map, reflective of improving trends in medium-term loans to consumers, albeit monthly growth rates are still below long-run averages.

The severity of the decline in lending to NFCs, particularly since 2013, is quite evident in the deep blue shading. We can use supplementary quarterly statistics to further investigate trends within sub-sectors of NFC lending. The heat map in Box B Chart 2 indicates that the contraction in NFC lending is quite broad-based, although variations do exist between economic sectors. Immediately notable is the widespread deep red blocks between 2004 and early 2008. Lending for real estate purposes was well above its long-run average in 2006, coinciding with the heat map for the mortgage lending series in Box B Chart 1, above.

Box B Chart 2: Heat Map of Credit to Businesses, by NACE Sector

Source: Table A.14 Trends in Business Statistics, Central Bank of Ireland.

Note: Quarterly data on credit to businesses is slightly wider in coverage than the definition of NFC lending, as it includes some non-incorporated enterprises, sole-traders, and partnerships, which belong to the household institutional sector in the monthly data. Additionally, debt securities are included in the quarterly business statistics.

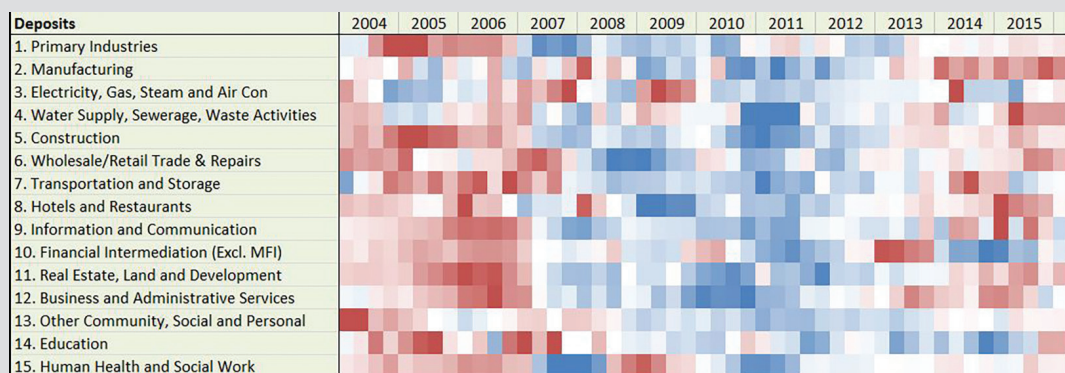
¹⁰ See a recent [Central Bank Economic Letter](#) (2016) on the countercyclical capital buffer.

Box B: A Heat Map for Irish Private Sector Credit and Deposits

By Martina Sherman and Stephen Byrne

In more recent quarters, the deep red for the water supply sector stands out, reflecting a large transaction in early 2015 that was well above the long-run average for the series. Also evident is the upturn in credit for manufacturing, reflective of consistently positive net lending during the past few quarters. This is, however, driven by large manufacturing business as distinct from SMEs. Many economic sectors are experiencing lower or static growth as indicated by the lighter blue shading, following a period of large net repayments for most. So while the headline NFC series in Box B Chart 1 is indicative of a persistently deep contraction in lending, Box B Chart 2 shows that variations exist across the economic sectors.

Box B Chart 3: Heat Map of Deposits from Businesses, by NACE Sector



Source: Table A.16 Trends in Business Statistics, Central Bank of Ireland.

Finally, a heat map for private sector deposits can inform the user about current deposit market developments and how these contrast with trends for loans. Deposits from households, in Box B Chart 1, have returned to their long-run average growth rate after a high volume of deposit outflows during the crisis. This is in line with other indicators, such as the domestic demand indicators from the Central Bank’s macroeconomic heat map which suggests an emerging broad-based recovery.

In contrast to trends in lending to NFCs, deposits from corporations appear to have reached a turning point in early 2013 (Box B Chart 1). The quarterly business statistics in Box B Chart 3 shed further light on the underlying developments by economic sector. While most sectors appear to have recovered from the large depletion of deposits during the crisis, manufacturing, business and administration, and hotels and restaurants are driving the current recovery in corporate deposits.

This Box aims to highlight the usefulness of heat maps for visualising Credit, Money and Banking statistics. These facilitate a quick overview of developments in various banking series, without the need to analyse each one individually. Visualisation tools such as this represent a quick and efficient method for disseminating credit developments in an easily understandable format.

Government

Funding conditions for the Irish Government have continued to improve in recent months. Yields on Irish Government 10 year bonds remained below 1 per cent for a fifth consecutive month in May with developments reflecting both domestic and external factors (Chart 5). Non-conventional monetary policy measures undertaken by the European Central Bank have depressed euro area sovereign yields generally, while heightened volatility in equity markets related to, among other factors, the result of the recent referendum on the United Kingdom's membership of the European Union has contributed to further downward pressure on Irish sovereign bond yields.

Financial Sector

Deposit flows from households and NFCs grew marginally in the first five months of 2016, with inflows of almost €3 billion from the NFC sector. However, these were largely cancelled by outflows from OFIs and from insurance corporations and pension funds. Irish households continued to be net funders of the Irish banking system at end-May 2016. Banks now hold €6.4 billion more household deposits than loans. This contrasts with early 2009, when household loans exceeded deposits by €53.5 billion.

The liability position of resident credit institutions *vis-à-vis* the eurosystem continued to fall since the last *Bulletin*, standing at €8.3 billion at the end of May, compared with €13 billion in May 2015.

The net asset value of investment funds (IFs) resident in Ireland decreased by 2.5 per cent over the first quarter of 2016, to €1,397 billion from €1,432 billion in Q4 2015 with negative revaluations of €46 billion accounting for the bulk of the decline. IFs total assets experienced negative revaluations of 2 per cent during the quarter with equity funds recording the most pronounced fall of 5 per cent. The reversal in equity markets following a strong performance in the last quarter of 2015 particularly impacted equity funds which suffered a €26 billion negative revaluation during Q1 2016.

Chart 5: Irish Government Ten-Year Bond Yields



Source: Thomson Reuters.

IFs holdings of government debt stood at €318 billion in Q1 2016, following €17 billion inflows over the quarter. There were continued strong inflows of €13 billion into higher yielding UK government debt, relative to similarly rated other European sovereign debt.

The net asset value of money market funds (MMFs) declined by €40 billion to €434 billion in Q1 2016, driven in the main by currency movements although investor outflows amounted to €9.5 billion. US dollar denominated funds saw the largest investor outflows at €15 billion, while MMFs withdrew €7.9 billion from US securities, the majority of which was government issued debt. MMFs continued a long-run trend of gradual maturity extension, with holdings of money market instruments maturing in 3 to 6 months increasing in contrast to a decline in shorter-term assets.

Developments in the Euro Area Economy

Overview

The result of the UK referendum to leave the EU (Brexit) is a significant shock to the euro area outlook. While UK GDP is now likely to contract in the second half of 2016, the euro area growth outlook will be adversely affected by weaker investor confidence, greater financial market volatility and potentially lower import demand from the UK. In addition, the result has exacerbated tensions in the banking sector across the euro area, where the negative shock to the growth outlook has raised further concerns about non-performing loans. However, despite the financial turbulence, central banks across the euro area were not required to take any unanticipated measures in the immediate aftermath of the vote.

Prior to the referendum, euro area GDP growth indicated a protracted, resilient recovery. In the first quarter, growth exceeded expectations and outpaced some other advanced economies. Additionally, GDP finally surpassed its pre-crisis peak level. In terms of the outlook, the euro area recovery will continue to rely on domestic demand, supported by a more favourable financing environment, progress in deleveraging across sectors, and the current very accommodative monetary policy stance. A weakening of the Euro exchange rate and the low level of oil prices will contribute to low HICP inflation in 2016.

Section 1: Growth and Inflation

Euro Area Growth and Inflation Developments

The impact of the UK referendum result has been evident in financial market data. The result surprised financial markets and triggered a widespread reappraisal of risk. The euro appreciated 9.6 per cent against Sterling between June 23 (the day before the referendum) and July 1. However, since then it also depreciated 2.2 per cent against the US dollar and overall it was broadly unchanged in nominal effective terms (Chart 1). The referendum result put downward pressure on market-based measures of long-term inflation expectations, with five-year in five-year forward inflation swap rates falling below 1.30 per cent¹ from 1.39 per cent immediately prior to the referendum. Equity markets in the euro area initially fell sharply but have since recovered to around 6 per cent below their pre-referendum

level. Equity declines were led by bank share prices which have fallen by 17 per cent, with sharper drops in Greece, Ireland and Italy (Chart 2).

Hard data are not yet available to indicate the impact of the referendum result on economic activity. In the first quarter of 2016, euro area real GDP increased by 0.6 per cent quarter-on-quarter, compared to 0.4 per cent in the final quarter of 2015 and this was stronger than the outturn for the US, UK, and Japan, (Chart 3). Domestic demand contributed more than expected due to strong private consumption and investment growth, lower oil prices, low financing costs and continued labour market improvements (Table 1). Net trade contributed negatively as import growth, in line with total demand, outpaced export growth.

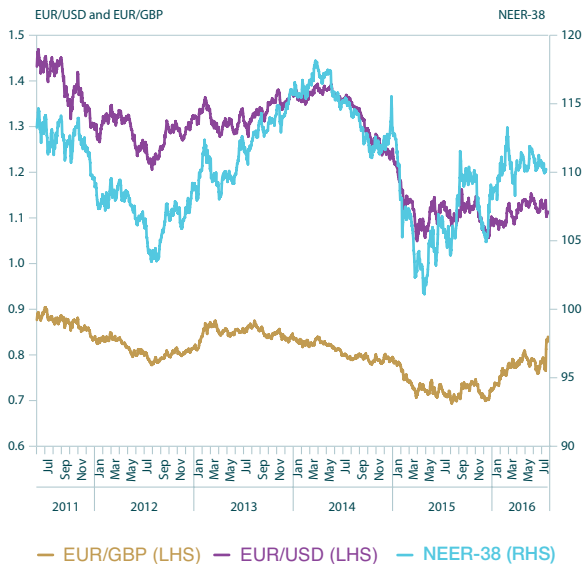
Amongst the euro area's largest economies GDP growth in Spain was higher than expected at 0.8 per cent, while growth in

¹ The five-year in five-year rate is the markets' expected average inflation rate (plus risk premia) between 2021 and 2026.

Table 1: Contributions of Expenditure Components to Quarterly Change in Euro Area GDP

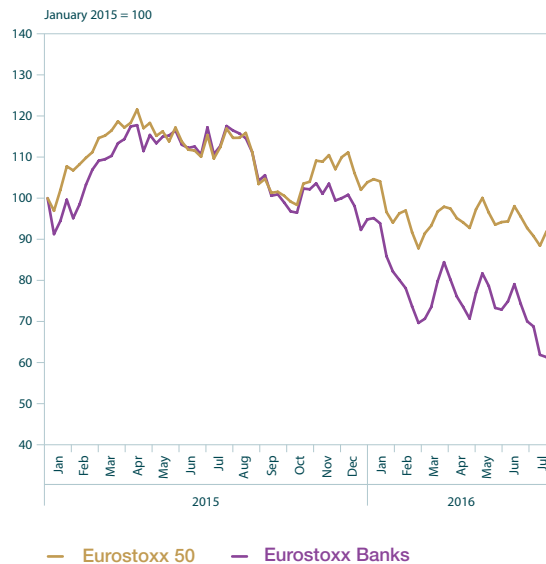
	2015Q2	2015Q3	2015Q4	2016Q1
Consumption	0.2	0.3	0.2	0.3
Government	0.1	0.1	0.1	0.1
Investment	0.0	0.1	0.3	0.2
Inventories	-0.2	0.2	0.1	0.1
Exports	0.7	0.2	0.3	0.2
Imports	-0.4	-0.5	-0.6	-0.3
GDP	0.4	0.3	0.4	0.6

Source: Eurostat.

Chart 1: Euro Exchange Rates

Source: Thomson Reuters Datastream.

Note: The latest observation is for 01 July 2016. A decrease in the above lines corresponds to a depreciation of the euro. NEER-38 refers to the nominal effective exchange rate of the euro area 19 countries vis-a-vis a group of 38 trading partners.

Chart 2: Eurostoxx and Eurostoxx Bank Equity Indices

Source: Bloomberg. The above chart displays the Eurostoxx 50 and the Eurostoxx indices scaled back to 100 for January 2015.

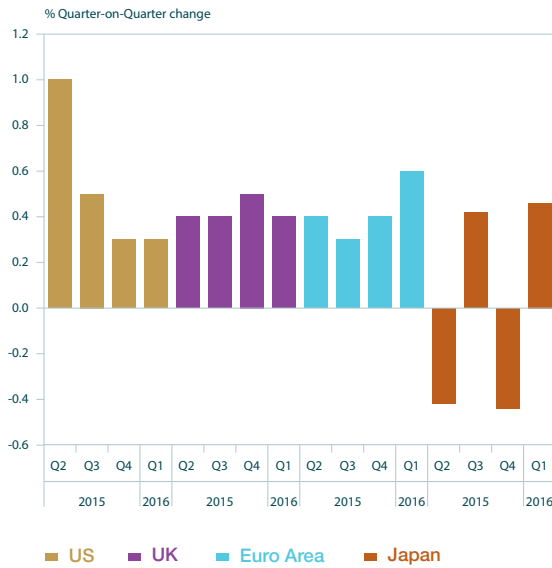
Note: The last observation is for 04 July 2016. The above chart displays the Eurostoxx 50 and the Eurostoxx bank indices scaled back to 100 for January 2015 using weekly data.

Germany and France increased to 0.7 per cent and 0.6 per cent respectively during the first quarter (Chart 4). At the same time output contracted in Greece during the first quarter and growth remains stubbornly low in a number of other countries. This pattern of very low growth can be attributed to a combination of cyclical and structural factors including the ongoing deleveraging of businesses and households, and the very low levels of both

productivity growth and the long term trend growth rate in a number of economies.

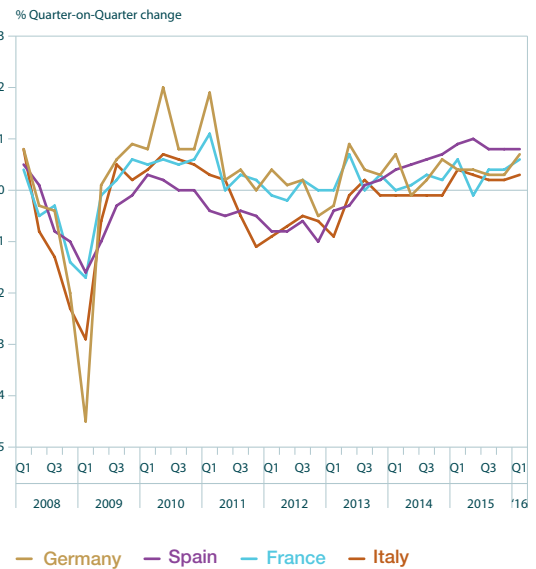
Labour markets have continued to gradually improve in the first quarter: employment increased further, rising by 0.3 per cent quarter on quarter, while the unemployment rate stood at 10.1 per cent in May, the lowest rate since July 2011. Nonetheless, wage pressures continue to remain limited. Although

Chart 3: GDP Growth in Advanced Economies



Source: Thomson Reuters Datastream.

Chart 4: GDP Growth in Selected Euro Area Economies



Source: Eurostat.

compensation per employee grew 1.2 per cent year-on-year in the first quarter of 2016, growth in negotiated wages declined slightly to 1.4 per cent in the first quarter of 2016 from 1.5 per cent in the previous quarter. Despite the reduction in the unemployment rate, the

main factor explaining the ongoing lack of wage pressure remains the persistent slack in the economy, along with the impact of labour market reforms and the low labour productivity growth (Box A).

Box A: Review of Labour Market Reforms in the Euro Area

By Barra McCarthy and Laura Moretti¹

Structural reforms can be defined as changes in rules that govern economic activity, and range from judicial reforms to the formation of a European Capital Market Union. The slow recovery in the euro area has led policymakers to advocate for the implementation of structural reforms as a means to strengthen investment, speed up job creation, and boost productivity. Both the European Commission² and the ECB³ regularly call for such reforms in member states. This box provides an assessment of the impact of structural reforms in the euro area.

This box focuses on reforms of institutional labour market arrangement, and asks how reforms to Employment Protection Legislation (EPL), a key labour market institution, impact on labour productivity and long-term unemployment.

EPL is a key labour market institution because it impacts the incentives for job creation and job destruction. It consists of the rules that determine the costs of dismissal for workers and the policies that govern the employment of workers on temporary contracts. Examples include severance pay entitlements for workers on regular contracts, and the number of times a fixed-term contract can be renewed.

1 The author's are Research Assistant and Senior Economist respectively in Monetary Policy.
 2 See: http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm
 3 See Coure (2014) and Praet (2015).

Box A: Review of Labour Market Reforms in the Euro Area*By Barra McCarthy and Laura Moretti*

By decreasing the cost of job creation and job destruction, EPL reforms increase worker flows. This decreases the average duration of unemployment, thus reducing long term unemployment (Blanchard and Katz, 1997; Bernal Verdugo et al., 2012). A lower cost of shedding labour as a result of EPL reforms can also improve a firm's ability to adjust their workforce to negative shocks, resulting in higher productivity growth (Martin and Scarpetta, 2011). Lower adjustment costs may also speed up the reallocation of workers between industries, further supporting productivity growth.⁴

However, partial EPL reforms, which create asymmetries between temporary and permanent contracts, have an ambiguous impact because they can encourage the excessive use of temporary contracts (Jacquier, 2015). Partial EPL reforms can also lead to an increase in unemployment (Blanchard and Landier, 2002) and, as a consequence, long-term unemployment. This can harm productivity in the medium-term as it reduces human capital accumulation. Finally, the impact of EPL reforms can depend upon the state of the economy, with the potential for reforms to have a negative effect during downturns (IMF, 2016; Bordon et al, 2016).

A simple comparison of outcomes between countries that underwent structural reforms with other countries may provide a misleading picture of the impact of reforms.

Different outcomes reflect not only the impact of reforms, but also other structural differences that might affect subsequent performance. Therefore, policy reforms are difficult to evaluate due to the challenge of selecting an appropriate control group. To control for these differences, we use the synthetic control method (see Abadie and Gardeazabal, 2003) to compare each country that implemented major structural reforms⁵ (henceforth, treated country) with a weighted combination of other European Union countries selected to resemble the pre-reform performance of the treated country. The synthetic control constructs a 'synthetic' counterfactual of the studied country had it not implemented the reforms. Differences between real and synthetic countries should not be viewed as precise estimates of the impact of EPL reforms, but rather as suggestive of whether reforms had an impact.

Countries that implemented major reforms to EPL include Estonia, Spain, Germany, Slovakia, Italy, Belgium, Netherlands, Portugal and Greece. The control group consists of countries that did not implement major reforms to EPL, and includes France, Iceland, Finland, Slovenia, Poland, Switzerland, Sweden, Ireland, Austria, Denmark, Latvia, Lithuania, Norway, United Kingdom and Czech Republic and treated countries when major reforms do not occur in the same treatment period. In this Box we focus on three countries: Belgium, the Netherlands and Estonia. They are chosen due to the magnitude of the reforms they undertook, because the reforms were not confounded by subsequent countervailing reforms, and because they are not outliers in the sample, thus making them suitable for use with the synthetic control method.

⁴ For empirical research see Autor et al., 2007 and Bassinini et al., 2009.

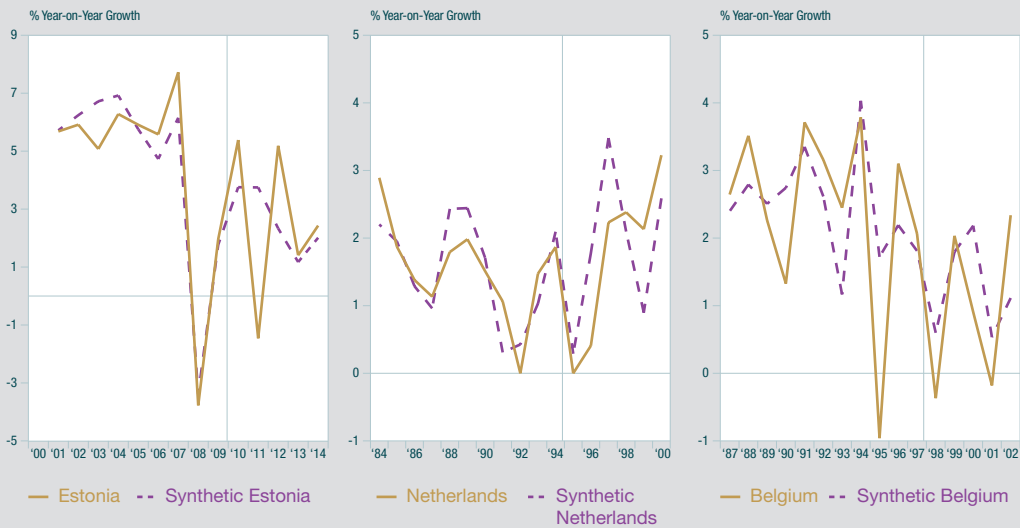
⁵ Major reforms are defined as fulfilling one of the following categories; a change greater than 2 standard deviations in OECD EPL indicators, mentioned as a major reform in April WEO 2016, classified as a 'Structural' reform in FRDB Social Reforms Database.

Box A: Review of Labour Market Reforms in the Euro Area

By Barra McCarthy and Laura Moretti

First, we assess the impact of EPL reforms on productivity.⁶ We do not find clear positive effects on labour productivity. Estonia and the Netherlands implemented substantial reforms in 2009 and 1994-1999 to employment protection for temporary and permanent contracts. As a result we would expect higher labour productivity growth relative to each countries synthetic control. In both countries we observe an initial decrease in productivity, followed by a recovery, with Estonia's productivity converging back towards its synthetic control. Estonia's initial decrease may be due to the reform being implemented during a recession, but a similar explanation cannot be provided for the Netherlands. Considering a case of partial reform, such as Belgium in 1997, we observe no clear impact on productivity; Belgium's productivity growth rate seems to hover around the rate of its counterfactual control.

Box A Chart 1: Effect of EPL Reforms on Labour Productivity



Source: OECD, authors' calculations.

Source: OECD, authors' calculations.

Source: OECD, authors' calculations.

In the analysis of the impact of EPL reforms on long term unemployment^{7 8}, we find a reduction in the case of complete reforms, but an increase in the case of partial reforms. Following complete reforms to EPL, Estonia and the Netherlands experienced decreased long-term unemployment relative to their synthetic control, suggesting that reforms increased worker flows, thus decreasing the average duration of unemployment. However, for Belgium, which only reformed temporary contracts, we find increased long term unemployment relative to the synthetic control. While this result may seem counterintuitive, this is consistent with Blanchard and Landier (2002), who suggest that partial labour market reform may increase unemployment.

6 Analysis the effect of reforms to EPL on long term unemployment is made difficult by the fact that there is a significant break in the series in 2005, which makes interpreting results for Germany, Italy, Greece, Slovakia and Portugal challenging.

7 Labour productivity data comes from OECD, defined as %YoY RGDP per hour worked; control variables used include growth rate in capital per worker(OECD, World Bank), ETCR indicators (OECD), gross expenditure on research and development as % of GDP (OECD), output gap (AMECO, OCED), % of population with tertiary education (World Bank), trade as % of GDP (World Bank), % population urban (World Bank), % of households with access to internet, FDI as a % of GDP (World Bank).

8 Long term unemployment figures and unemployment sourced from ILO, long term unemployment defined as unemployment duration > 12 months; control variables include unemployment (ILO), output gap (AMECO), union density (OECD), level at which centralised wage bargaining occurs (CEPS-OECD dataset), tax wedge (Eurostat, CEP-OECD), active labour market policy expenditure per participant (CEP-OECD), benefit duration and replacement rate (CWED dataset), minimum wage relative to median and mean (OECD).

Box A: Review of Labour Market Reforms in the Euro Area

By Barra McCarthy and Laura Moretti

Box A Chart 2: Effect of EPL Reforms on Long-Term Unemployment

Source: ILO, authors' calculations.

Source: ILO, authors' calculations.

Source: ILO, authors' calculations.

Caution should be exercised in the interpretation of the impact of EPL reforms as their impact may be contingent on the state of the economy and whether reforms are complete or partial. The results suggest that there is no clear positive effect of EPL reforms on labour productivity. However, the tentative evidence suggests that EPL reforms reduce long-term unemployment if they are complete, while they seem to increase it if they are partial.

Bibliography

Abadie, A. and Gardeazabal, J. (2003). The Economic Costs of Conflict: A Case Study of the Basque Country. *American Economic Review*, 93(1), pp.113-132.

Autor, David H., William R. Kerr, and Adriana D. Kugler. "Does Employment Protection Reduce Productivity? Evidence From US States*". *The Economic Journal* 117.521 (2007): F189-F217.

Bassanini, Andrea, Luca Nunziata, and Danielle Venn. "Job Protection Legislation And Productivity Growth In OECD Countries". *Economic Policy* 24.58 (2009): 349-402.

Bernal-Verdugo, Lorenzo E., Davide Furceri, and Dominique M. Guillaume. "Labor Market Flexibility And Unemployment: New Empirical Evidence Of Static And Dynamic Effects". *IMF Working Papers* 12.64 (2012): 1.

Blanchard, Olivier and Augustin Landier. "The Perverse Effects Of Partial Labour Market Reform: Fixed-Term Contracts In France". *The Economic Journal* 112.480 (2002): F214-F244.

Blanchard, Olivier and Lawrence F Katz. "What We Know And Do Not Know About The Natural Rate Of Unemployment". *Journal of Economic Perspectives* 11.1 (1997): 51-72.

Bordon, Anna, Christian Ebeke, and Kazuko Shirono. "When Do Structural Reforms Work? On The Role Of The Business Cycle And Macroeconomic Policies". *IMF Working Papers* 16.62 (2016): 1.

Coure, Benoit. "Structural reforms: learning the right lessons from the crisis". Economic conference. Latvijas Banka. Riga. 17 Oct. 2014. Keynote Speech.

Table 2: Latest Forecasts of Euro Area Growth in Real GDP

	Date	2016		2017		2018	
		GDP	Inflation	GDP	Inflation	GDP	Inflation
EU Commission	May 2016	1.6	0.2	1.8	1.4	-	-
Eurosystem Staff (BMPE)	June 2016	1.6	0.2	1.7	1.3	1.7	1.6
OECD	June 2016	1.6	0.2	1.7	1.2	-	-
IMF	April 2016	1.5	0.4	1.6	1.1	-	-

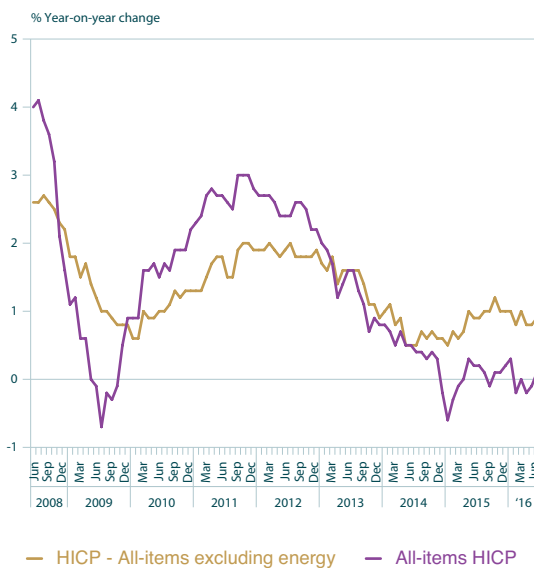
Sources: IMF *World Economic Outlook* April 2016; OECD *Economic Outlook* 99 June 2016; European Commission, *Spring Forecast 2016*; ECB June 2016 *Broad Macroeconomic Projection Exercise*.

Headline inflation turned positive in June (0.1 per cent) for the first time since January according to Eurostat's flash estimate. Moreover, HICP inflation excluding energy (Chart 5) is expected to recover slightly to 0.9 per cent based on Eurostat's flash estimate for June after remaining at 0.8 per cent since April. However, the energy component, although starting to reflect the recent increase in oil prices, is expected to be -6.5 per cent in June compared to -8.0 per cent in each month since February. Given the recent recovery in both spot and futures prices for oil, inflation is expected to pick up in 2017 due to base effects in energy prices. However, the uncertainty created by Brexit might slow down the recovery and dampen inflation.

Outlook for Growth and Inflation

The latest short-term data point to ongoing growth in the second quarter, although no data are available which reflect the period after the UK referendum result. Monthly retail sales in May rose by 0.4 per cent following an increase of 0.2 per cent month-on-month in April. Seasonally-adjusted industrial production in April partially reversed reductions observed early in the year, but services sector growth weakened. The composite output PMI was unchanged at 53.1 in June having averaged 53.2 in the first quarter. The Commission's Economic Sentiment Indicator stood at 104.3 on average across the three months of Q2 compared with 104.0 in Q1 2016.

Chart 5: Euro Area Inflation



Source: Eurostat.

Note: The above chart includes Eurostat's flash estimate for June 2016

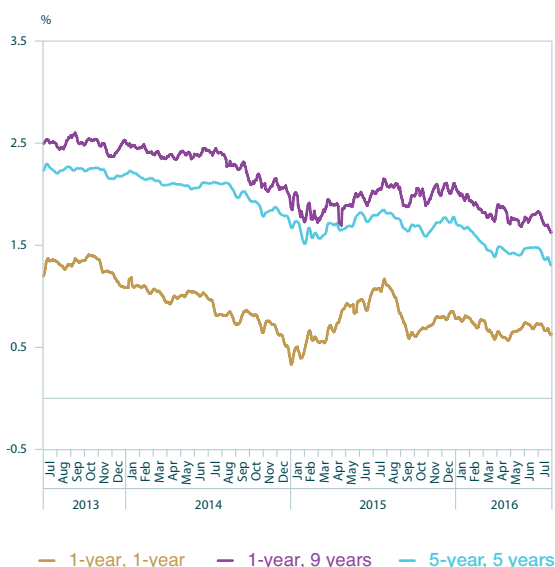
In terms of the outlook for the full year, recent forecasts (not including the effects of Brexit) suggest growth in the range of 1.5-2.0 per cent (Table 2). The latest economic projections by the EU Commission forecast euro area real GDP growth of 1.6 per cent and 1.8 per cent in 2016 and 2017, respectively. The June ECB staff projections also indicate 1.6 per cent growth in 2016, but are slightly lower for 2017 at 1.7 per cent. Domestic demand is expected to continue to drive the recovery, supported by the pass-through of the monetary policy measures to the real economy. In addition, favourable financing conditions and improvements in corporate profitability are expected to continue to promote investment.

Turning to inflation, the expectation for 2016 in the June Eurosystem staff macroeconomic projection was revised upward to 0.2 per cent from 0.1 per cent in the March projection round reflecting the recovery in oil futures and

the stimulus provided by the latest monetary policy measures adopted by the ECB.

While the second quarter results of the ECB's Survey of Professional Forecasters (SPF) revised down inflation expectations for 2016, they remain above the ECB's projection at 0.3 per cent compared to 0.7 per cent in the first quarter SPF survey. The SPF expectations for 2017 are for inflation of 1.3 per cent, down from 1.4 per cent in the first quarter. However, longer-term inflation expectations (2020) remain stable at 1.8 per cent respectively. Market-based measures of long-term inflation expectations already responded to news of the UK referendum (Chart 6). The result put downward pressure on long-term inflation expectations, possibly reflecting negative risk premia. The five-year in five-year forward inflation swap rate (the markets' expected average inflation rate (plus risk premia) between 2021 and 2026) declined to 1.30 per cent at the start of July compared to 1.39 immediately prior to the referendum. Similarly, the one-year in nine-year forward inflation swap rate - the markets' expected inflation rate (plus risk premia) between 2025 and 2026 - declined to 1.63 per cent from 1.70 per cent over the same period.

Chart 6: Market's Future Inflation Expectations Based on Implied Forward Inflation Swap Rates



Source: CBI staff calculations, data extracted from Bloomberg.

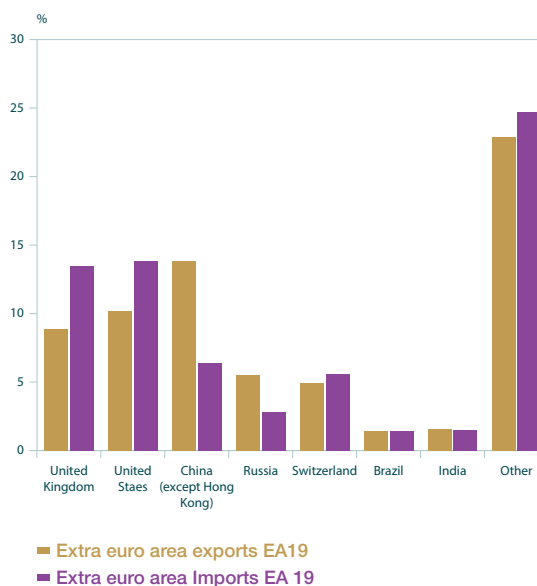
Note: The chart displays 5 days moving averages. "1 year, 1 year" refers to swap rates with a maturity of 1 year beginning in 1 year; "1 year, 9 years" refers to swap rates with a maturity of 1 year beginning in 9 years; and "5 years, 5 years" refers to swap rates with a maturity of 5 years beginning in 5 years.

Risks to the Outlook for the Euro Area

Overall the risks to the outlook are on the downside. In particular, uncertainty will persist as long as the UK's new status vis-a-vis the EU is not clear. Furthermore, should the UK referendum act as a catalyst for greater reflection on European integration elsewhere, the period of uncertainty could be deeper and more protracted.

Indeed, IMF staff argue that increased uncertainty and risk aversion in the wake of the referendum vote, would negatively affect growth in the UK's neighbours in both the short and long-run.² The net long-run economic effects are likely to be substantial but vary according to a country's trade and financial exposures to the UK. Reduced trade access will lead to lower output, investment and income in both the UK and countries with trade links to the UK. The weakening of Sterling will raise the price of euro area exports to the UK; reducing demand for euro area exports further (chart 7).

Chart 7: Extra Euro Area Exports and Imports

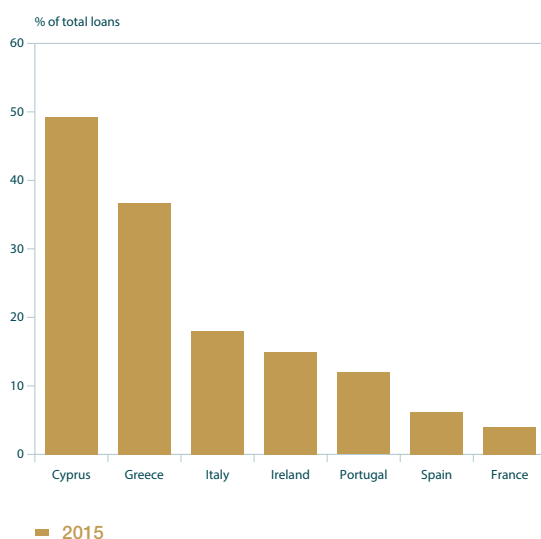


Source: Eurostat.

Note: The above chart shows euro area exports and imports by trading partner. The data is constructed by netting out and excluding all intra euro area trade.

Existing issues in the banking sector across the euro area appear to have been exacerbated by the UK referendum result, although the level of non-performing loans in Italian banks had already raised concerns both with markets and supervisors (chart 8). In the short-term, clarification of institutional arrangements for dealing with these issues will be key in addressing the risk of contagion and mitigating any impact on the euro area outlook, while in the longer-run, developments in non-performing loans will also be important.

Chart 8: Non Performing Loans



Source: Datastream and IMF Financial Soundness Indicators.

Note: The above chart displays the proportion of non-performing loans to gross loans in 2015 across a selection of euro area economies.

Other notable downside risks include renewed adverse shocks in emerging markets and intensified geopolitical tensions affecting oil supply. Emerging economies are starting to experience headwinds from significant levels of private sector debts, including in US dollars, notably in the corporate sector and large external financing needs.³ These have started to weigh on business decisions as local exchange rates have depreciated against the Euro as well as the US dollar and capital flows have started to reverse back to advanced economies⁴ (See Box B). A stronger slowdown in emerging market economies, including China, poses downside risk to euro area foreign demand.

2 IMF (2016), UK 2016 Article IV Consultation “Macroeconomic implications of the United Kingdom leaving the European Union” *Selected Issues Paper. IMF Country Report No. 16/169.*

3 On the magnitude of US dollar debt of non-financial corporates, see BIS *Quarterly Review* December 2015 “Dollar credit to emerging market economies”.

4 See p.18, Bank of England *Financial Stability Report*, December 2015

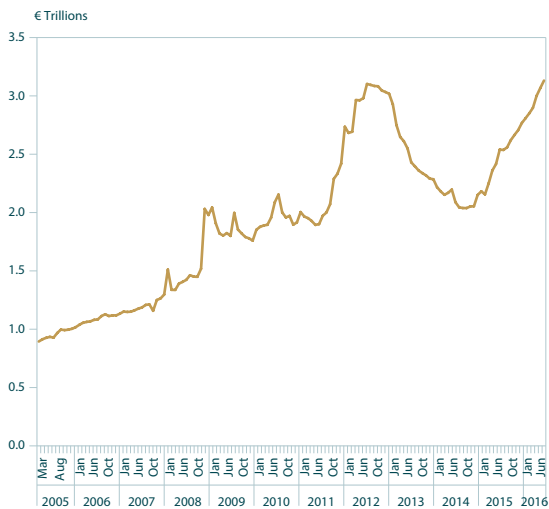
Section 2: Euro Area Monetary Policy Developments

In March 2016, the Governing Council of the ECB announced a large package of measures including interest rate reductions, the expansion of asset purchase programs to include investment-grade euro-area corporate bonds and a new targeted longer-term refinancing operation (TLTRO II). These measures were discussed in detail in the last Quarterly Bulletin. Since then, the Governing Council has held two monetary policy meetings, on April 21 and June 2, and left monetary policy unchanged on both occasions.

Following its meeting on June 2, the Governing Council noted that the package of measures announced in March was underpinning the euro area’s gradual economic recovery and fostering the return of inflation to levels below, but close to, 2%, pointing in particular to the impact of the measures on the credit market. It has also been noted that following the announcement of the decision to purchase corporate bonds, spreads on new issues declined significantly. In addition, the Governing Council expected added impetus from the March package when some of the measures were implemented later in June. To this end, the purchase of corporate bonds began on June 8, and the first of the four new rounds of TLTRO II took place on June 22. In this operation, just under €400bn was borrowed. However, many banks used this funding to pay down more expensive eurosystem borrowings, which will reduce the overall effect on bank lending somewhat.

At its June meeting, the Governing Council also reiterated its expectation that interest rates would remain at present or lower levels for an extended period of time, and well past the horizon of net asset purchases. It also confirmed that the monthly asset purchases of €80 billion are intended to run until the end of March 2017, or beyond, if necessary, and in any case until the Governing Council sees a sustained adjustment in the path of inflation consistent with its inflation aim. As a result of the measures undertaken by the Governing Council, by the end of June the ECB’s balance sheet was larger than it had ever previously been (Chart 9).

Chart 9: ECB Total Assets



— ECB Total assets.

Source: Bloomberg.

Note: Data is nominal.

Finally, on June 21, Germany's highest Court dismissed a constitutional challenge to the policy of Outright Monetary Transactions (OMT). This program was announced by the ECB in 2012 but so far it has not been deployed. Arguments had been made that OMT was outside the ECB's mandate, and the Constitutional Court referred the case to the European Court of Justice (ECJ) last year. The ECJ found that OMT was within the ECB's mandate subject to certain conditions. The German Constitutional Court's latest decision specified further conditions for the Bundesbank's participation in OMT: the volume of the ECB's purchases must be limited from the outset, purchases must not be announced, only bonds issued by member states with market access can be bought from member states with market access, and the bonds must be held to maturity only in exceptional circumstances.

Elsewhere, the minutes of the Federal Open Markets Committee's (FOMC) meeting in April raised expectations of a rate increase at its June meeting. However, when the

FOMC met on June 15, it decided to leave rates unchanged, noting that the pace of improvement in the labour market had slowed since the previous meeting, and in light of uncertainty in advance of the Brexit referendum vote. In particular, Chair Yellen noted that Brexit 'could have consequences for economic and financial conditions in global financial markets' with knock-on effects 'for the U.S. economic outlook that would be a factor in deciding on the appropriate path of policy'.

In advance of the Brexit referendum, the Bank of England noted the potential negative financial and economic effects of a decision to leave, and announced it would provide additional liquidity auctions around the referendum date in order to ensure banks' continued access to funding. The Bank of England's Monetary Policy Committee also left interest rates unchanged following their meeting on June 15, with the Committee pointing towards Brexit uncertainty as a factor in their decision. In the wake of the referendum result, Governor Carney noted that he believed the economic outlook has deteriorated and some monetary policy easing will likely be required over the summer.⁶

⁵ For a discussion see Section 2 of the Developments in the Euro Area Economy chapter of Quarterly Bulletin 3, 2015: <http://www.centralbank.ie/publications/Pages/QuarterlyBulletin.aspx>

⁶ <http://www.bankofengland.co.uk/publications/Documents/speeches/2016/speech915.pdf> page 15.

Box B: Composition and Dynamics of Chinese Capital Flows: What has been the Role of Capital Controls?

By Valerie Herzberg¹

Net capital flows to emerging markets have slowed since 2010. According to the IMF, this slowdown has been similar in size and breath to previous crisis episodes in the 1980s and 1990s.² China accounted for a large proportion of this reversal. Yet, policies such as those which maintained restrictions on residents' ability to move capital out of China while simultaneously encouraging Foreign Direct Investment (FDI), may have partly sheltered the Chinese economy from even more disruptive capital flow dynamics.³ This Box discusses these policies and presents some evidence which suggests that while China experienced a sharp decline in capital inflows, it did not experience such a severe increase in outflows.

Between 2004 and 2010, net capital flows increased almost fourfold. However, since the end of 2010, net capital flows have declined 25%⁴. In general, we can consider that there are 'push' (i.e global or external) and 'pull' (i.e domestic) factors, such as levels of risk aversion or economic growth differentials, that typically play an important role in determining capital flow movements. For instance, growth in China slowed from over 10 per cent in 2010 to below 7 per cent in early 2016, probably explaining a large part of the slowdown in capital flows. In addition, efforts to control the exchange rate over recent years may have contributed to recent adverse recent movements in capital flows.⁵

Counterbalancing this, however, there is evidence that the presence of capital controls has offered protection to China, where financial account liberalization has been gradual and strategic. With the country's accession to the WTO in 2001, FDI regulations were significantly relaxed to encourage large multinational firms to transfer production and know-how to China. In contrast, the removal of restrictions on banking and portfolio flows came later and has been only partial. For example, it was only in 2007 that constraints on Chinese enterprises' use of FX deposits were eased. To date, restrictions on the conversion of Renminbi into foreign exchange by residents remain in place for all non-trade related transactions, while portfolio investment continues to be subject to various quota schemes.⁶ Overall, the financial account remains relatively closed⁷.

A closer look at the recent decline in Chinese financial flows is suggestive of a 'sudden stop' in capital inflows, but not (yet) of a 'capital flight' episode. Following the methodology of Forbes and Warnock (2012), we classify previous episodes of extreme capital movements into actions driven by foreign investors (referred to by Forbes and Warnock (2012) as 'surges' and 'stops' in relation to capital inflows) and resident investors ('flight' and 'retrenchment' in relation to capital outflows).^{8,9} For China, the annual change in capital inflows fell below the one standard deviation bound and thus outside 'normal' fluctuation bands in mid-2014 and has remained at a 2 standard deviation distance since, consistent with a 'sudden stop' episode (Chart 1). Capital outflows, despite the sharp decline, have however yet to reach the two standard deviation marker to qualify as a 'capital flight' episode by the Forbes and Warnock (2012) methodology (Chart 2).

1 The author is Deputy Head in the Monetary Policy Division.

2 Chapter 2 of the World Economic Outlook, April 2016 "Understanding the slowdown in capital flows to emerging markets".

3 The financial account balance is composed of the balances of FDI, portfolio flows, other investment and reserve assets.

4 China's net capital flows increased rapidly between 2004 – 2008 although a lot of this increase was reversed during 2009 owing to the global financial crisis before stabilising in 2010.

5 For China, there is evidence that in the context of the step-wise RMB repegging in late 2015, Chinese corporations held on to US dollars earned abroad while at the same time accelerating repayments of US dollar debt, in light of expectations about future currency depreciation.

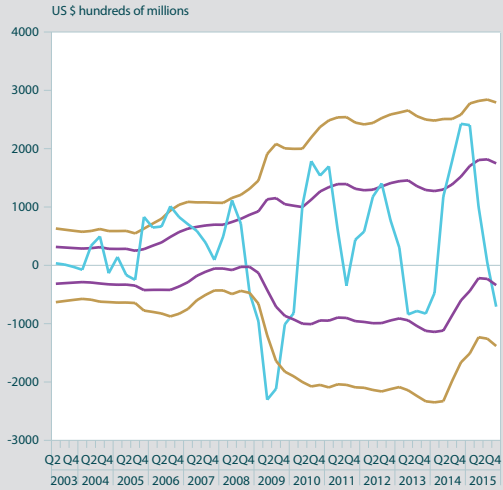
6 For an overview of China's liberalisation policy, see "Chinese Capital Flows and Capital Account Liberalisation" (December 2015), Reserve Bank of Australia Bulletin.

7 See Fernandez et al (2015), "Capital Control Measures: A new dataset", NBER Working Paper.

Box B: Composition and Dynamics of Chinese Capital Flows: What has been the Role of Capital Controls?

By Valerie Herzberg

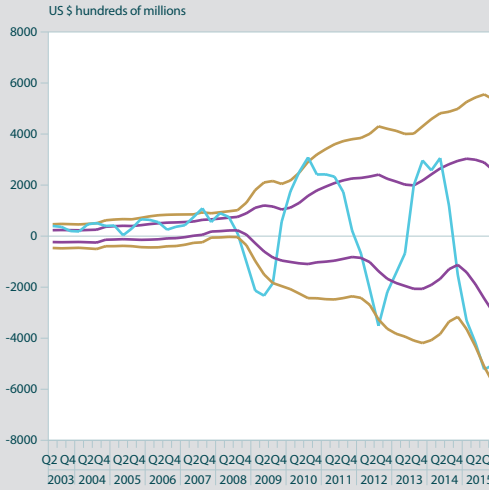
Box B Chart 1: Surge and Stop Episodes for Chinese Capital Outflows



— 2 Standard Deviations — 1 Standard Deviation
 — 2 Standard Deviations — 1 Standard Deviation
 — Change in Gross Outflows

Source: Thomson Reuters, Datastream and Author's Calculations.

Box B Chart 2: Surge and Stop Episodes for Chinese Capital Inflows



— 2 Standard Deviations — 1 Standard Deviation
 — 2 Standard Deviations — 1 Standard Deviation
 — Change in Gross Inflows

Source: Thomson Reuters, Datastream and Author's Calculations.

Conclusion

While China has not been immune to shifting investor sentiment in the context of slowing domestic activity and a managed exchange rate, the gradual and strategic approach towards financial liberalisation tilted towards FDI may have protected it to some degree. Going forward, how to further liberalise the financial account, while avoiding disruptive capital movements, remains an important policy challenge.

- 8 As referred to by Forbes and Warnock (2012). A sudden stop is defined as a period when gross inflows (financial liabilities) fall one standard deviation below the mean, provided they reach two standard deviations below at some point. A capital flight episode is defined similarly, but looking at gross private outflows (financial assets). For more see Forbes and Warnock "Debt and equity led capital flow episodes", NBER Working Paper, August 2012.
- 9 For comparison and in order to focus on private financial assets and liabilities, the measure of private financial assets and liabilities are arrived at by summing together Direct Investment, Portfolio Investment, other Investment, and Financial Derivatives. The series on Chinese financial assets does not include Reserve assets although when it is added the movement in gross flows are very similar to the pattern displayed in Chart 1.

Signed Articles

The articles in this section are in the series of signed articles on monetary and general economic topics introduced in the autumn 1969 issue of the Bank's Bulletin. Any views expressed in these articles are not necessarily those held by the Bank and are the personal responsibility of the author.

The New Paradigm: Analysis of Eurosystem Monetary Operations

John Graham, Alaoishe Luskin and Anthony Nolan, Financial Markets Division¹

Abstract

In 2015 and the first half of 2016, the actions of global central banks continued to be one of the main drivers of financial markets and a key focus for market participants. In this article, we review the Eurosystem experience over this period outlining the main changes to the Eurosystem's operational framework, in particular the expansion of the asset purchase programmes, and analyse the impact of these measures on Eurosystem liquidity provision and on liquidity conditions. In this context, the article also summarises developments in the euro-area money market over the review period and provides a brief summary of the debt capital market activity of both the Irish sovereign and main domestic banks.

¹ The authors would like to acknowledge, with thanks, the input of John Larkin, Thomas Brophy, Amelia Dennigan, and the helpful comments and suggestions of William Molloy, Peter Sinnott, Maurice McGuire and other colleagues in the Financial Markets Division of the Central Bank of Ireland.

1. Introduction to monetary policy developments (2015 & H1 2016)

Over the course of 2015 and the first half of 2016, the ECB's Governing Council introduced a number of new non-standard measures in order to achieve its monetary policy mandate of maintaining the euro-area inflation rate of below, but close to, 2 per cent over the medium term. These measures, which occurred against a backdrop of subdued economic growth and low inflation, included an increase in the volume of purchases under the asset purchase programmes, the expansion of the purchasable asset classes to include sovereign and corporate debt, reductions to the policy rates and continued liquidity provision via the Targeted Longer Term Refinancing Operations (TLTROs).

The ECB was not alone in adopting further non-standard stimulus measures. Monetary accommodation was also added by other central banks and the adoption of negative interest rates became a feature of the period. The Bank of Japan (BoJ), having expanded its asset purchases to ¥80 trillion per year, announced the introduction of a tiered reserves system in January 2016, in which a portion of financial institutions' reserves held with the central bank attract a negative interest rate of -0.1 per cent. In addition, the Swiss National Bank (SNB), which had removed its exchange rate cap to the euro in January 2015, lowered its deposit rate from 0.25 per cent to -0.75 per cent, as it aimed to reduce the pressure on the Swiss franc and "in turn, the risks to price and economic developments which may arise as a result of an appreciation."² In Sweden, the Riksbank cut its repo rate a number of times, moving it further into negative territory to -0.50 per cent in February 2016, while the Danmarks Nationalbank cut its certificate of deposit rate further to finish at -0.65 per cent by the end of H1 2016.³

In anticipation of the UK's vote on EU membership, the Bank of England (BoE)

announced in early March 2016 that additional Indexed Long-Term Repo operations would be offered in the weeks around the referendum. Moreover, in light of the outcome of the UK vote on 23 June 2016, the BoE announced that, as a backstop and to support the functioning of markets, it stood ready to provide £250 billion of additional funds through its normal facilities. At the time of writing, market expectations have risen for a rate cut by the BoE to counter any deterioration in the outlook for the UK economy.

Outside of Europe the decisions of two key central banks were significant drivers of markets during the review period. Firstly, the Peoples' Bank of China (PBOC) engaged in monetary policy easing in August 2015, by conducting a series of currency devaluations which saw the currency depreciate by 2.7 per cent against the US dollar over the month. This was followed by a further policy change in January 2016, when the PBOC introduced a "referenced" rate (which represented a departure from a more closely managed exchange rate) for the renminbi against a basket of currencies, and made a number of reductions to banks' reserve requirement ratios during this period.

In contrast to more expansionary monetary policies adopted by other central banks, the US Federal Reserve made a decision to embark on its first interest rate hike since 2006, as a result of improved US economic performance and declining unemployment. At its meeting in December 2015, the Federal Open Markets Committee (FOMC) raised the funds rate to a range of 0.25-0.50 per cent. The highly anticipated decision by the Federal Reserve to increase the funds rate from a range where it had been since January 2009 was a key driver of financial markets and, in particular, a stronger US dollar towards the end of 2015.

While mindful of the global backdrop this article focuses on the euro area and the actions of the ECB. It is structured as follows: Section

² Source: Swiss National Bank website (Speech 13/01/2016) - Fritz Zurbrugg, Vice Chairman of the Governing Board of the Swiss National Bank: http://www.snb.ch/en/mmr/speeches/id/ref_20160113_zur.

³ Source: Danmarks Nationalbank official interest rates.

2 gives an overview of the ECB's monetary policy decisions over 2015 and H1 2016. Section 3 looks at overall trends in Eurosystem open market operations, while Section 4 discusses developments in Ireland with regard to Eurosystem liquidity provision as well as the sovereign and domestic banks' debt market activity. Section 5 concludes the paper.

2. ECB's Key Policy Decisions in the review period

The Eurosystem provided substantial monetary stimulus over the period to counteract heightened risks to the ECB's price stability

mandate. This was in response to very low or even negative inflation in the euro area, and had an objective of securing the return of inflation to levels below, but close to, 2 per cent. The measures introduced included the expansion of the purchase programmes (with subsequent modifications during the period in terms of volumes and asset composition), further policy rate cuts and the announcement of a new series of TLTROs. **Box 1** below summarises the main decisions of the ECB throughout the review period.

Box 1: Summary of ECB Decisions

On 22 January 2015, the ECB's Governing Council announced details of its expanded asset purchase programme (APP), with combined monthly purchases of €60 billion, which added the public sector purchase programme (PSPP) (comprising sovereign bonds) to its existing private sector asset purchase programmes. The purchases were intended to be carried out at least until September 2016, and encompassed the Asset-Backed Securities Purchase Programme (ABSPP) and the third Covered Bond Purchase Programme (CBPP3) which were both launched in 2014.

The Governing Council also decided that the interest rate for the remaining six TLTROs would be equal to the rate on the Eurosystem's Main Refinancing Operations (MROs) prevailing at the time of the TLTRO tender announcement, thereby eliminating the 10 basis point spread that previously applied to these operations.

On 5 March 2015, the Governing Council adopted a decision on the public sector purchase programme (PSPP), defining the scope and details of the key operational arrangements of the PSPP announced on 22 January 2015, applied from 9 March 2015. The Governing Council also approved the list of international and supranational institutions in addition to agencies whose securities are eligible for purchase under the PSPP.

On 3 December 2015, the Governing Council decided to reduce the rate on the Deposit Facility by 10 basis points to -0.30 per cent, with effect from 9 December 2015, while leaving the interest rates on the MRO and the Marginal Lending Facility unchanged at 0.05 per cent and 0.30 per cent respectively.

The following measures were also announced on 3 December 2015:

- the extension of the APP and carrying out monthly purchases of €60 billion until the end of March 2017, or beyond, if necessary;
- the reinvestment of the principal payments on the securities purchased under the APP as they mature, for as long as necessary;
- the extension of MROs and three-month TLTROs as fixed rate tender procedures with full allotment for as long as necessary, and at least until the end of the last reserve maintenance period of 2017 (which represented an extension of this procedure by one year).

Box 1: Summary of ECB Decisions

On 10 March 2016, the Governing Council decreased the interest rate on the MROs of the Eurosystem by 5 basis points to 0.00 per cent; the marginal lending facility by 5 basis points to 0.25 per cent; the rate on the Deposit Facility by 10 basis points to -0.40 per cent, starting from the operation settled on 16 March 2016.

The following measures were also announced on 10 March 2016:

- the launch of a corporate sector purchase programme (CSPP) as an additional component of the APP, to include investment-grade euro-denominated bonds issued by non-bank corporations established in the euro area in the list of assets that are eligible for regular purchases. This is to further strengthen the pass-through of asset purchases to the financing conditions of the real economy;
- the increase of combined monthly purchases under the APP to €80 billion, starting in April 2016;
- a new series of four targeted longer-term refinancing operations (TLTRO II) starting in June 2016 was announced.

This package of monetary policy decisions aimed to provide substantial monetary stimulus to counteract the heightened risks to the ECB's price stability objective.

3. Developments in Eurosystem Liquidity Provision

Excess liquidity⁴ across the euro area increased from €262.1 billion as at 1 January 2015 to €859.9 billion as at 30 June 2016, driven primarily by purchases under the APP, while continued participation in TLTROs,

combined with the application of fixed rate full allotments in refinancing operations generally, also contributed. Box 2 below provides further details of the first TLTRO series (TLTRO-I), in addition to the second series of TLTROs (TLTRO-II) announced by the Governing Council on 10 March 2016.

Box 2: Targeted-Longer-Term Refinancing Operations - present and future

TLTRO-I

In June 2014, in order to support bank lending to the euro-area non-financial sector, the ECB introduced a series of eight TLTROs, to be conducted on a quarterly basis, each with a maturity of four years. The operations initially enabled counterparties to borrow up to 7 per cent of the total amount of eligible loans to the euro area non-financial private sector (excluding loans to households for house purchase) outstanding as at 30 April 2014, in two operations in September and December 2014. Subsequently, additional amounts could be borrowed through the operation based on the evolution of a counterparty's eligible lending activities in excess of bank-specific benchmarks. Banks that borrowed in TLTRO-I and fail to achieve their benchmarks as at 30 April 2016 will be required to pay back their borrowings in full in September 2016. The interest rate on the operations was initially set at a 10 basis point spread above the prevailing MRO rate at the time of the operation. However, in January 2015, the Governing Council waived the 10 basis points spread; therefore the rate on the remaining six TLTROs, allotted between March 2015 and June 2016, was fixed over the life of the operation at the MRO rate prevailing at the time of the tender announcement. All TLTROs mature in September 2018.

⁴ Excess liquidity exists in the Eurosystem when the liquidity supply provided through the ECB's monetary policy instruments exceeds the liquidity needs (autonomous factors plus reserve requirements) of the banking system.

Box 2: Targeted-Longer-Term Refinancing Operations - present and future

A total of €212.4 billion was allotted across the euro area in the initial two TLTROs in September and December 2014. In the review period, a total amount of €219.6 billion (€205.5 billion in 2015, with a further €14.1 billion in 2016) was allotted through these operations.

The declining trend in TLTRO participation throughout 2015 and into 2016 was largely driven by the abundant liquidity conditions arising from previous TLTRO take-up and the APP, which placed downward pressure on money market rates and allowed banks to fund more cheaply in the money market. In addition, a total of €367.9 billion was voluntarily early repaid in TLTRO-I in June 2016, as many counterparties anticipated rolling borrowings into TLTRO-II.

TLTRO-II

In March 2016, with inflation rates remaining below the ECB's inflation target, the Governing Council announced the introduction of four new TLTROs (TLTRO-II) as part of a wider package of measures, commencing in June 2016, each with a maturity of four years. The operations, which will be conducted at a quarterly frequency, and will allow for an early repayment after two years, are intended to further ease private-sector credit conditions, by offering attractive long-term funding. The new operations have different features compared to the first series of TLTROs as there is no mandatory repayment operation and the borrowing rate may be negative if certain lending thresholds are met.

A total amount of up to 30 per cent of eligible loans (loans to the non-financial corporations and households excluding loans for house purchases, which is in line with the definition of eligible lending for the first series of TLTROs) can be borrowed through TLTRO-II, less any funds borrowed in the first two TLTROs conducted in 2014. The interest payable on the loans is determined by the evolution of a counterparty's eligible lending relative to a bank-specific benchmark between 1 February 2015 and 31 January 2016. If a counterparty's eligible net lending exceeds 2.5 per cent of its benchmark, outstanding TLTRO II borrowings will be charged at the rate of the Deposit Facility (currently -0.40 per cent). As the rate of the Deposit Facility is currently in negative territory, this results in the counterparty receiving remuneration on any outstanding borrowings, therefore providing an incentive to participate. If a counterparty's eligible net lending exceeds its benchmark, but is below 2.5 per cent of its benchmark, an interest rate between the rate on the Deposit Facility and the MRO rate (currently zero per cent) will be applied.

Following the Governing Council meeting in March 2016, the ECB introduced an additional voluntary repayment possibility in June 2016 for all outstanding funds borrowed through the first series of TLTROs. This allows counterparties to roll over any funds borrowed under the first series of TLTROs into TLTRO II. A total of €399.3 billion was provided in the first take-up of TLTRO-II by euro area counterparties, which settled on 29 June 2016.

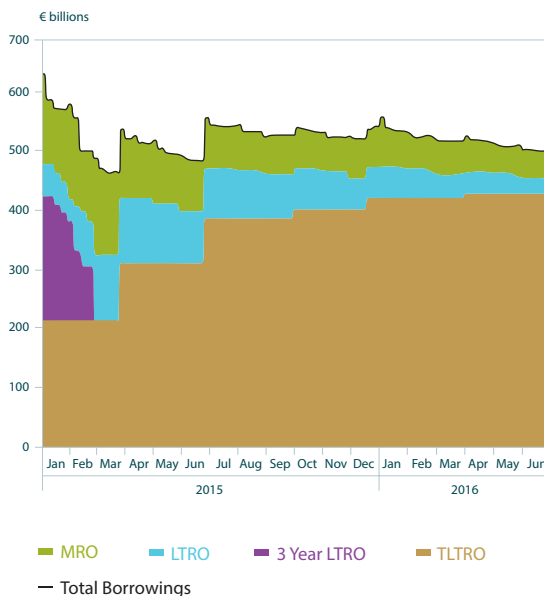
3.1 Eurosystem Refinancing Operations

Participation in Eurosystem refinancing operations decreased by €70.9 billion over 2015, from €629.4 billion on 31 December 2014 to €558.5 billion on 31 December 2015. As at 30 June 2016, total Eurosystem lending stood at circa €541.2 billion. This lower level of recourse to Eurosystem lending was largely

due to the abundant liquidity arising from the APP.

As can be seen from Chart 1, TLTROs became the dominant refinancing tool for counterparties, accounting for approximately 86 per cent of liquidity provided by the Eurosystem as at 30 June 2016. Chart 1

Chart 1: Total Eurosystem Lending (2015 - end H1 2016)



Source: CBI calculations.

illustrates the trend in Eurosystem refinancing operations.

Finally, refinancing via MROs declined by €103 billion during the period, from €156.1 billion on 31 December 2014 to €53.1 billion on 30 June 2016, as counterparties had reduced recourse to the Eurosystem’s standard refinancing operations.

3.2 Eurosystem’s Purchase Programmes

As previously mentioned, purchases of euro area debt securities under the APP have been a significant contributor to excess liquidity with cumulative purchases on 1 July 2016 of €1,088.8 billion. Box 3 below provides a summary of developments in relation to the asset purchase programme over the course of 2015 and H1 2016.

Box 3: The evolution of the euro area expanded asset purchase programme

The European Central Bank (ECB) announced an expanded asset purchase programme (APP) on 22 January 2015 in response to a prolonged period of persistently low inflation in the euro area and in order to achieve the ECB’s price stability mandate. The aim of this box is to highlight some of the details around the APP and outline some of the changes to the programme that have been implemented since its inception.⁵

The APP incorporated a new Public Sector Purchase Programme (PSPP) which supplemented the existing private sector asset purchase programmes, encompassing the Asset-Backed Securities Purchase Programme (ABSPP) and the Covered Bond Purchase Programme (CBPP3), both of which were launched in late 2014. The APP was augmented this year with the Corporate Sector Purchase Programme (CSPP), which extends the programme to include purchases of investment-grade euro-denominated bonds issued by non-bank corporations. PSPP purchases began on 9 March 2015 comprising marketable debt instruments issued by euro area governments, certain agencies and certain international or supranational institutions located in the euro area. Eurosystem purchases under the APP were initially conducted at an average pace of €60 billion each month from 9 March 2015 and were intended to be carried out until at least September 2016 and in any case until the Governing Council saw “a sustained adjustment in the path of inflation that is consistent with its aim of achieving inflation rates below, but close to, 2 per cent over the medium term.” On 1 July 2016, the total cumulative purchases of euro area debt securities under the APP amounted to €1,088.8 billion. Of this, €878.5 billion related to the PSPP, €183.6 billion to the CBPP3, €19.9 billion to the ABSPP and €6.8bn to the CSPP.⁶

⁵ For a more detailed analysis on why the programme was introduced and the various channels through which it works please see Dunne, Everett and Stuart ‘ The expanded asset purchase programme – What, Why and How of Euro Area QE’ Quarterly Bulletin No. 3 2015

⁶ As outlined in the [consolidated financial statement](#) of the Eurosystem as at 1 July 2016.

Box 3: The evolution of the euro area expanded asset purchase programme

A number of criteria were announced around the purchases of securities under the PSPP. Securities are only allowed to be purchased in the secondary market in order to comply with Article 123 of the Treaty on the Functioning of the European Union (TFEU), which prohibits the purchase of sovereign debt securities in the primary market by the Eurosystem. In addition, securities must be denominated in euros, be eligible as collateral for Eurosystem monetary policy operations and have a minimum remaining maturity of 2 years and a maximum remaining maturity of 30 years and 364 days at the time of purchase. It was also decided in March 2015 that bonds yielding less than the rate on the ECB's Deposit Facility are not eligible for purchase.

The Governing Council also announced limits around the volume of purchases. It was decided to have a 25 per cent issue share limit (the proportion of any one bond issue that can be held by the Eurosystem, aggregated across all portfolios) and a 33 per cent issuer limit (the proportion of bonds issued by a particular sovereign or supranational institution held by the Eurosystem). These limits were designed to prevent the Eurosystem from having a blocking minority in a debt restructuring involving collective action clauses (CACs)⁷, while preserving market functioning and safeguarding price formation. Finally, regarding implementation, the ECB coordinates the purchases, with the vast majority of purchases undertaken on a decentralised basis by the national central banks (NCBs) in line with the capital key⁸.

Since its launch, a number of changes to the programme have been implemented in terms of the size, duration, composition and in relation to certain modalities of the APP. All of the announced changes are designed to improve the smooth implementation and effectiveness of the programme, with the ultimate goal of helping the Eurosystem to achieve its price stability mandate. The main changes were:

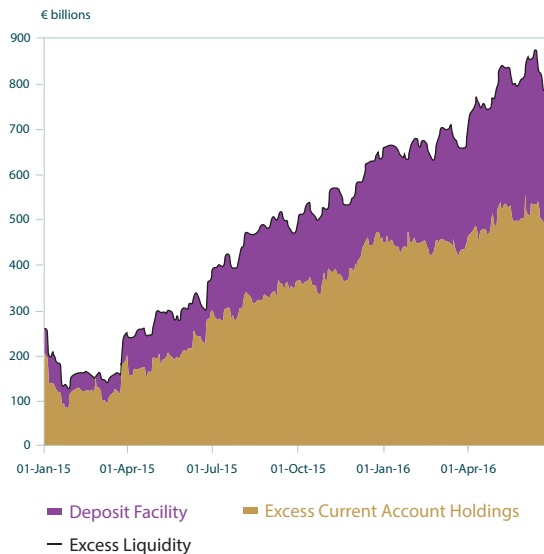
- The list of agencies whose debt is eligible for purchase under the PSPP has been updated on two occasions, **April and July 2015**.
- **In September 2015**, the issue limit was increased from 25 per cent to 33 per cent subject to a case-by-case verification that it would not create a situation whereby the Eurosystem would have a blocking minority for the purposes of CACs, in which case the issue share limit would remain at 25 per cent.
- **In December 2015**, the Governing Council decided to extend purchases from September 2016 to March 2017⁹ and to make certain marketable debt instruments issued by regional and local governments located in the euro area eligible for regular PSPP purchases. The Governing Council also decided that the principal of each bond would be reinvested as the bond matures, for as long as necessary.
- **In March 2016**, it was decided to increase the pace of purchases of the APP to an average of €80 billion per month. The CSPP was also announced in March 2016. Finally, it was also decided to increase the issue share limit for EU supranational bonds from 33 per cent to 50 per cent and to decrease the share of EU supranational bonds from 12 per cent to 10 per cent of PSPP purchases.

⁷ A collective action clause (CAC) allows a large majority of bondholders to agree to a debt restructuring that is legally binding on all holders of the bond, including those who vote against the restructuring.

⁸ The capital key is the percentage that each National Central Bank contributes to the ECB capital. It is calculated as each respective country's share in the total population and gross domestic product of the EU, equally weighted.

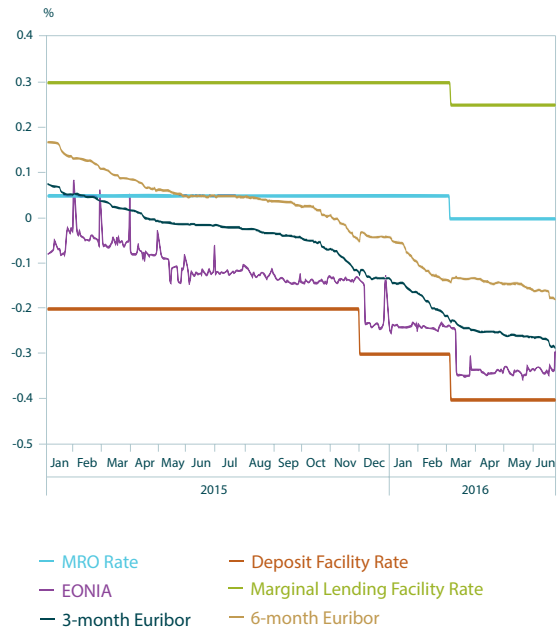
⁹ Purchases under the APP are now intended to run until the end of March 2017, or beyond, if necessary, and in any case until the Governing Council sees a sustained adjustment in the path of inflation consistent with its aim of achieving inflation rates below, but close to, 2 per cent over the medium term.

Chart 2: Composition of Excess Liquidity (2015 - end H1 2016)



Source: CBI calculations.

Chart 3: The Eurosystem's Interest Rate Corridor & Selected Money Market Rates (2015 - end H1 2016)



Source: Bloomberg.

3.3 Overview of Liquidity Conditions in the euro-area and impact on money market rates

Eurosystem counterparties deposit liquidity either on the overnight Deposit Facility or on their current account as excess reserves (thereby over-fulfilling minimum reserve requirements). The growth in excess liquidity increased upon commencement of the Eurosystem's PSPP in March 2015 (combined with increased lending via TLTRO-I during the same month). Chart 2 illustrates this rising trend in excess liquidity over the review period.

As a consequence of the monetary policy decisions taken by the ECB, in particular the APP, money market rates continued a decline to historic lows. The EONIA rate reached its lowest average monthly fixing over 2015 in December (-0.199 per cent) following the Governing Council's decision to lower the rate on the Deposit Facility by 10 basis points to -30 basis points. This rate declined further to an average fixing of -0.333 per cent for the remainder of the review period following the Governing Council decision on 10 March 2016 to decrease the rate on the Deposit Facility to

-40 basis points. Chart 3 illustrates that in an environment of high excess liquidity, money market rates move closer to the rate on the Deposit Facility.

This close link between the EONIA and the rate on the Deposit Facility reflects the fact that in an environment of high excess liquidity, this rate acts as the main policy anchor of money market rates. The increase in excess liquidity also drove EURIBOR fixings lower into negative territory during this period following further Governing Council announcements on the expansion of the purchase programmes.

4. Summary of Irish Developments

4.1 Irish Eurosystem Borrowings & TARGET2 Balance

Against the backdrop of the Eurosystem's APP and high levels of excess liquidity, Eurosystem lending to Irish domiciled counterparties decreased from €20.7 billion at 2014 year-end, to €10.7 billion at the end of 2015. There was a decline in Eurosystem lending to domestic

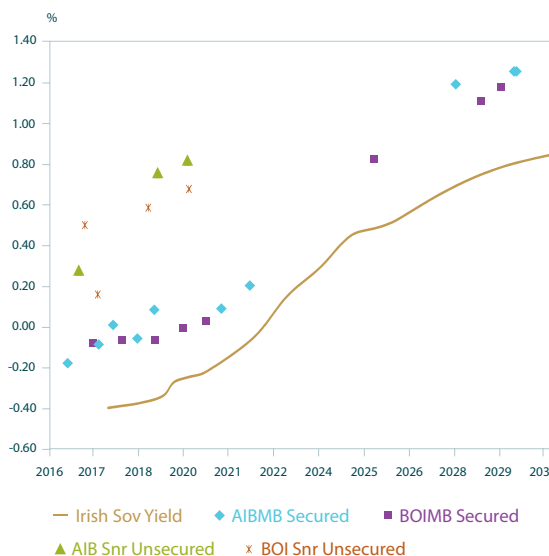
banks (from €12.6 billion to €9 billion) and for subsidiaries and branches of foreign banks (from €8.1 billion to €1.7 billion)¹⁰. During 2015, and as seen in the preceding year, Irish domestic banks continued to reduce their level of central bank funding mainly due to deleveraging, increased deposit inflows and improved access to the international debt markets.

In line with lower levels of recourse to Eurosystem lending, Ireland's T2 liability declined to €3.0 billion by the end of 2015 from €22.7 billion at the end of 2014. The most significant factors for this movement included the increase in the Irish domestic banks' access to international debt markets, the on-going deleveraging process across some of the banks and also reportedly due to sales of NAMA assets to foreign investors.

4.2 Irish sovereign and bank debt market activity in 2015 and to end of June 2016

Reflecting the impact of the Eurosystem's APP, Irish sovereign bond yields reduced across the curve during 2015 and H1 2016. For example, the 10-year bond yield was 1.15 per cent at the end of 2015 compared to 1.25 per cent at the start of January 2015, while the spread over the equivalent German 10-year bund narrowed to 52 basis points by end-2015, from 71 basis points at the start of January 2015. Irish sovereign bond yields remained stable in H1 2016 despite the uncertain political climate at this time. The 10-year yield fell under the 1 per cent level and achieved record lows despite volatility observed in other asset classes, notably emerging markets. This performance was also achieved against a background of a continued improvement in the public finances which was reflected in rating upgrades by the main rating agencies over the period. Following the 'Leave' outcome of the UK's referendum on membership of the EU, and amid the subsequent general market volatility, this trend lower in Irish sovereign yields and spreads has continued.

Chart 4: Selected Irish Banks' Bond Yields



Source: Bloomberg.

During 2015 and into the first half of 2016, Irish domestic banks also demonstrated continued bond market access, through both secured and unsecured issuance to an international investor base. The bond issuances were well subscribed given the improved outlook for the banking sector. The improvement has been supported by better sovereign funding conditions, improving financial results of the banks and an accommodative monetary policy stance. Most Irish domestic banks' covered bonds trade c. 20-30 basis points above the equivalent Irish sovereign yield (see Chart 4). Chart 4 illustrates selected banks' secured and unsecured yield levels relative to the sovereign yield curve.

The decline in Irish banks' covered bond yields since early 2015 can in part be attributed to the on-going purchases under the CBPP3 programme and this trend continued into 2016. Unsecured Irish bank debt as at 30 June 2016 traded at an average spread over the sovereign of c. 90-100 basis points, at similar spreads seen in early 2015. It was against this backdrop that borrowing from Eurosystem operations by domestic banks declined over the period.

¹⁰ Based on the latest publicly available data.

5. Conclusion

Amid emerging market volatility and political uncertainty relating to certain euro area peripheral countries, central bank monetary policy decisions remained a key supportive driver of financial markets in 2015 and during H1 2016. The continued accommodative policy by the Eurosystem (and other major central banks) supported asset prices, while banks' recourse to Eurosystem lending declined further over the period. The euro area economy was also impacted by continued low inflation which led the ECB's Governing Council to announce further policy measures, notably successive reductions to the rate on the Deposit Facility to -0.40 per cent and an expansion of the APP in volume and asset classes. Purchases under the APP are now intended to run until the end of March 2017, or beyond, if necessary, and in any case until the Governing Council sees a sustained adjustment in the path of inflation consistent with its aim of achieving inflation rates below, but close to, 2 per cent over the medium term.

In this context, excess liquidity has continued to rise over the review period, reaching €859.9 billion by the end of H1 2016, and pushing both secured and unsecured money markets rates towards the rate on the Deposit Facility. Excess liquidity levels will continue to increase up to March 2017 as the Eurosystem's purchase programmes continue, which should in turn continue to anchor money market rates towards the rate on the Deposit Facility. The impact of policy decisions of the world's major central banks will continue to impact markets throughout 2016, along with other factors including developments following from the outcome of the UK's referendum on EU membership.

Annex 1: Glossary of Terms

Autonomous Factors: Autonomous factors are normally outside the control of the Eurosystem and are defined as the items in the consolidated balance sheet of the Eurosystem, apart from monetary policy operations, that provide or withdraw liquidity from the system. The most notable autonomous factors are banknotes in circulation; government deposits with the Eurosystem; and net foreign assets.

EONIA (Euro Overnight Index Average)

is a market index computed as the weighted average of overnight unsecured lending transactions undertaken by a representative panel of banks.

EURIBOR (Euro Interbank Offered Rate)

is the rate at which interbank term deposits are offered by one prime bank to another prime bank. This is often the reference rate for maturities of one, two and three weeks, and for maturities of one to twelve months.

Excess liquidity arises when the supply of liquidity (as provided via the Eurosystem's monetary policy instruments), exceeds the demand for liquidity (as dictated by minimum reserve requirements and autonomous factors outside the direct control of individual NCBs), there is said to be **excess liquidity** in the banking system. In this situation, the excess will likely end up being deposited with the Eurosystem via Deposit Facility usage or the current account balance.

Excess Reserves: Current account holdings in excess of the average minimum reserve requirements.

Liquidity Provided: The net amount of liquidity provided by the Eurosystem through its monetary policy instruments.

Maintenance period (MP): The period over which compliance with reserve requirements is calculated. The MP begins on the settlement day of the first MRO following the policy meeting of the Governing Council.

Minimum reserves are determined on the basis of the institutions' average daily reserve

holdings (calculated on the basis of certain balance sheet liabilities) over a maintenance period. Each bank in the Eurosystem is required to maintain a balance with their respective NCB. The required reserve holdings are remunerated at a level corresponding to the average interest rate over the maintenance period of the MROs of the Eurosystem.

Open Market Operations (OMO's) include Main Refinancing Operations, and Longer-Term Refinancing Operations, as defined below:

- (i) **Main refinancing operations (MRO)** are regular liquidity-providing reverse transactions with a frequency and maturity of one week. The MRO rate is currently 0 per cent.
- (ii) **Longer-Term Refinancing Operations (LTRO)** are liquidity-providing reverse transactions that are regularly conducted with a monthly frequency and a maturity of three months. Longer-Term Refinancing Operations can also be conducted at irregular intervals or with other maturities, such as with the length of one maintenance period, six months, twelve months or up to four years (as with the TLTROs).

Standing facilities aim to provide and absorb overnight liquidity, signal the general monetary policy stance and bound overnight market interest rates. Two standing facilities, which are administered in a decentralised manner by the NCBs, are available to eligible counterparties on their own initiative:

- (i) **Marginal Lending Facility (MLF):** Counterparties can use the MLF to obtain overnight liquidity from the NCBs against eligible assets. The interest rate on the MLF is currently 0.25 per cent and normally provides a ceiling for the overnight market interest rate.
- (ii) **Deposit Facility (DF):** Counterparties can use the Deposit Facility to make overnight deposits with the NCBs. The interest rate on the Deposit Facility is currently -0.40 per cent and normally provides a floor for the overnight market interest rate.

TARGET2 is the payment system of the euro that is operated by the central banks of the Eurosystem. All payments are settled in central bank money (that is to say they are booked on the accounts that banks hold with their central bank) and are settled in real time. The payments are primarily between banks and ancillary systems (e.g. security settlement systems, central bank counterparties, retail payment systems) as well as payments forming part of Eurosystem operations such as Open Market Operations.

Variable rate allotment: In normal circumstances, the Eurosystem, when conducting its OMOs, assesses the total liquidity need of the banking sector and, in competitive tenders, allots this amount. Usually these tenders are conducted as variable rate tenders, meaning that banks pay the interest rate that they offer when they make their bids.

The Eurosystem may also execute its tenders in the form of **fixed rate tenders**, where the interest rate is specified in advance and banks bid the amount of money they wish to transact at the fixed interest rate.

In exceptional circumstances, the ECB may decide in advance to allot the full amount of liquidity that banks request, i.e. to accommodate all bids, at a fixed interest rate (known as **fixed rate full allotment**).

Estimating Cash Buyers and Transaction Volumes in the Residential Property Sector in Ireland, 2000-2014

Dermot Coates, Joe McNeill and Brendan Williams¹

Abstract

This article describes data used to address the issue of the volume of transactions and cash-only sales in Ireland's residential property market over almost two decades. The approach employed here examines the proportion of total residential property sales attributable to cash buyers (or non-mortgage transactions) and provides new insights which allows for a deeper understanding of developments in the market. We find that at the pinnacle of Ireland's housing boom, there were approximately 150,000 transactions, with cash buyers accounting for 25 per cent of these sales. Since then the volume of transactions fell to a low of 21,000 in 2010 while the share of cash purchases had risen to around 60 per cent in more recent years. The increase in the share of cash buyers reflects the sharp fall in the number of mortgages drawn down while the actual number of cash-buyer transactions is not necessarily atypical of the early years of the last decade. We also find that the turnover of residential property – or total transactions as a proportion of the housing stock – has fallen sharply since the crisis and is currently low, both by historical and by international standards.

¹ The authors are a Senior Economist, and Head of Division in the Statistics Division of the Central Bank of Ireland, and a Lecturer in Urban Economics at University College Dublin. The views expressed in this article are solely the views of the authors and are not necessarily those held by the Central Bank of Ireland or the European System of Central Banks. The authors would like to thank Gabriel Fagan for his helpful comments. The authors would also like to thank Annette Hughes (DKM Economic Consultants), Anthony O'Brien (Banking and Payments Federation of Ireland), Fintan McNamara (formerly Institute of Professional Auctioneers and Valuers), John O'Connor and David Silke (Housing Agency), Gregg Patrick (Central Statistics Office) and Keith Walsh (Office of the Revenue Commissioners).

1. Introduction

Over recent years, market estimates – and media commentary – have estimated cash buyers at approximately 50 per cent of all property transactions in the Irish residential market. Indeed, industry research suggests that cash buyers can crowd-out the traditional mortgaged purchaser: ‘...faced with a choice of bids from cash and debt-financed buyers, vendors will tend to opt for the convenience and certainty of cash’ (Savills Research, 2015). This article seeks to determine whether the absolute volume of cash buyers in the Irish residential property sector is out-of-step with historic trends. We also consider whether the rise in levels of cash buyers as a proportion of all residential property transactions is directly related to the fall in overall transactions or an actual increase in the prevalence of cash sales. In order to investigate such trends, it will be necessary for us to endeavour to estimate a time-series for the overall volume of annual residential property transactions in Ireland over time. Robust data on total transactions has not previously been collated and published (DKM, 2010) prior to the introduction of the Property Price Register (PPR). These issues are addressed in detail below.

The objective of this article is to contribute to current debate around these issues by means of estimating the extent to which housing output and turnover levels may have diverged from observed historic levels. This can improve our understanding of the role of cash sales over time. We also address the impact of factors such as vacancy rates and cyclical movements in the sector on the interpretation of the available data. Section 2 discusses the meaning and definition of the term ‘cash buyer’ and reviews recent market estimates; Section 3 outlines certain inherent data limitations and our methodology in estimating both sales’ volumes in the residential property sector and the prevalence of cash buyers; Section 4 summarises our findings on the role of cash buyers over the past decade and puts these in the context of the extant housing demand and supply dynamics; and Section 5 concludes.

2. What is a Cash Buyer?

The term ‘cash buyer’ in the property market specifically relates to the cash-only purchase of a residential property (or a transaction undertaken as a ‘*non-mortgage based transaction*’ (DKM, 2010)). For the purposes of this article, cash sales are defined as all residential property transactions where there is no recourse to household mortgage finance from an Irish-resident bank. This cohort covers a wide range of purchasers. It does not, however, imply that these purchasers will always do so without recourse to leverage. The term ‘cash buyer’ can potentially include older households opting to downsize (i.e. using the proceeds of a home sale to purchase a smaller dwelling). It can also include private investors using property as an alternative to low-yield deposits. In the current climate, this might include those in receipt of pension lump sums – including those exiting the civil and public service under the series of Incentivised Schemes for Early Retirement introduced over recent years – plus those accessing withdrawals of Additional Voluntary Contributions (AVCs)².

Such individual household cash buyers are complemented by institutional investors such as the growing indigenous Real Estate Investment Trust (REIT) sector and international investors. Social and voluntary housing providers – such as Approved Housing Bodies, for instance – have also been active in the marketplace. The latter do so via borrowed funding provided through the Housing Finance Agency and/or other sources (but without accessing household mortgage credit). In the case of the REITs, although these were primarily financed via equity at the outset this is changing and bank credit is increasingly playing a role. In other words, these can also be leveraged purchasers.

Whilst the scale of interest in Irish property investment displayed by international investors (including acquisitions by speculative international asset management groups, etc.) is clearly quite high, it is also true that

² The Finance Act, 2013 permits a once-off withdrawal of up to 30 per cent with respect to Occupational Pensions and PRSAs, albeit that the authors understand that the figures involved are relatively small.

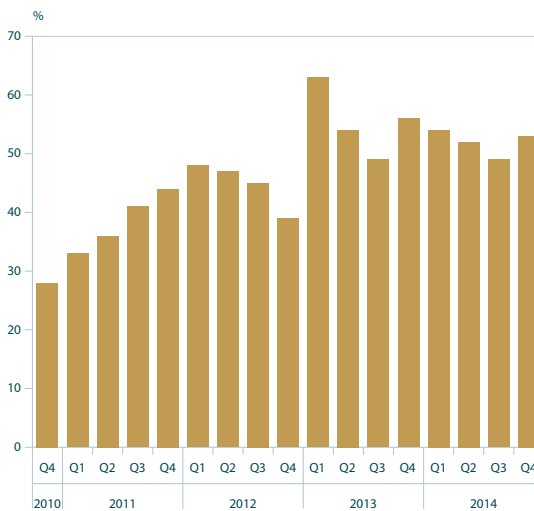
cash sales are not a new or solely recent phenomenon. In the aftermath of Budget 2013, for instance, existing property industry companies in Ireland had the opportunity to establish REITs (similar to the experience in the UK post-2007) (Coates and Moloney, 2016) and some such companies have developed from groups with longstanding investment histories in Ireland. Similarly, the propensity for inter-generational transfers between parents and first-time buyers (FTBs) or for individual households to downsize and/or hold multiple properties is not new and will have been a feature of the market for many years.

2.1 Recent market estimates

It is clear that cash buyers – from individual investors to downsizing households to private property investment companies – are not a new phenomenon but have been a longstanding feature of the market. Nonetheless, the proportion of total residential property sales attributable to cash buyers appears to have grown and has been a recurrent theme in public discourse in recent years with a number of market estimates tending to put the proportion of cash buyers at close to 50 per cent (or more) over recent quarters (Savills Research, 2015; FCAM, 2015). In the case of Savills Research, the published estimates on the proportion of cash-only housing transactions have ranged from 28 per cent in Q4 2010 to a high of 63 per cent in Q1 2013 before easing back to 53 per cent in Q4 2014 as cash buyers began to account for ‘a declining proportion of total market transactions’ (Chart 1). The results of the annual survey of members of the Society of Chartered Surveyors in Ireland (SCSI) found that respondents attributed 50 per cent of all residential property transactions to cash buyers in 2013 and 40 per cent in 2014 (SCSI, various years).

These estimates, however, tend to combine in-house research with an approach that typically compares the total volume of transactions in a given period with the volume of mortgages drawn down³ (excluding equity release and

Chart 1: Selected market estimates – cash-only housing transactions as a proportion of total transactions



■ Cash-only housing transactions as a proportion of total transactions

Source: Savills World Research, Ireland Residential - Residential Property Q1 2015.

top-up mortgages). The residual is treated as a derived estimate of cash sales. For instance, Sherry FitzGerald (2015) previously found that there were more than 13,000 cash sales (or greater than 50 per cent of the total) in the nine-month period to September 2014. This largely reflected the differential between PPR-recorded transactions (27,000) and mortgages drawn down (13,200). A similar type of methodology has been adopted by other commentators with First Citizen Asset Management (FCAM) estimating that there were more than 10,000 cash sales (or 50 per cent) for H1 2015 compared to 21,400 transactions and more than 10,700 mortgages drawn down. As a result, the appropriate equation can be broadly represented as follows:

$$\text{Total transactions (PPR)} - \text{mortgages drawn down (BPF)} = \text{cash buyers}$$

Finally, recent research in the UK has estimated that cash purchases accounted for 38 per cent of that housing market in Q1 2015 (compared

³ These volumes includes FTBs, mover-purchasers and buy-to-let mortgages. Data is sourced from the Banking and Payments Federation of Ireland (BPF).

with 36 per cent in 2014). The proportion of cash purchases in the UK has followed a broadly upward trajectory since 2006 when the equivalent estimate was closer to 25 per cent (Nationwide, 2015; 2016). The authors of said research attributed the growth in the proportion of cash transactions to a variety of factors. These included tighter credit conditions and unemployment as these constraints would have much less impact on cash buyers. Other factors include the flow of cash into assets such as property – on foot of the low interest rate environment – plus older households moving to another, smaller property without the need for a mortgage, and parents purchasing homes outright for young FTBs. Many of these same factors will likely apply in Ireland also. For instance, Savills Research (2016) found that FTBs accounted for 15 per cent of cash sales in Ireland by late 2014: *'cash gifts and loans from "The Bank of Mum and Dad"...have emerged as a funding source for FTBs'*.

2.2 Overview of residential property transactions since 2010

The residential PPR is the principal source of data on residential property purchases in Ireland. The PPR is produced by the Property Services Regulatory Authority (PSRA)⁴ and includes the date of sale, price and address of all residential properties purchased in Ireland since the 1st January 2010, as declared to the Revenue Commissioners for stamp duty purposes. The data contained therein may be subject to a time-lag or delay in reporting actual transactions. The PPR database currently shows approximately 21,000 recorded residential property transactions for 2010. This rose in subsequent years with approximately 30,000 and 43,000 transactions recorded for 2013 and 2014, respectively.⁵

The PPR database contains a given number of data points (or rows) in each year reflecting each property transaction recorded on the Revenue Commissioners' e-Stamping system.⁶ Each row, however, does not necessarily equate to a single transacted residential property but may represent multiple properties. In other words, there is scope for a greater number of underlying individual residential properties to be transacted than that suggested by the headline statistics. In order to explore this in greater detail, we examined a specific sub-sample of those transactions where the sale price was shown as €2 million or more. We did so for each year between 2010 and 2014 in order to better estimate the number of individual residential properties transacted per annum. This approach will necessarily still under-estimate the true volume of total properties transacted – as it does not address multiple properties on a return with a sales value below €2 million – but it will nonetheless give a useful estimate for the purposes of this research.

For instance, in 2012 this database contained approximately 25,000 rows but on closer examination, these data represented more than 25,000 individual properties transacted. For 2013, this database contained approximately 30,000 rows but on closer inspection, we estimate that 84 of these rows actually represented a further 2,500 individual residential properties (whether individual apartments or houses) such that the underlying number of transacted units was closer to 32,500. In that year, these rows included such multi-unit developments as Sandford Lodge, the Gasworks, and Clancy Quay in Dublin. In each case, these simply appear as a single record on the PPR database. The underlying number of transacted units was closer to 45,000 in 2014, or 1,500 more than the PPR⁷ (Chart 2).

⁴ This register is produced pursuant to Section 86 of the Property Services (Regulation) Act 2011. Data includes some non-market prices and records which do not include VAT at 13.5 per cent. The PSRA does not edit this data and it recognises that errors may occur when the data is being filed.

⁵ Data for each year may change over time as the database is updated with new records.

⁶ e-Stamping is Revenue's on-line pay and file system allowing users to file stamp duty returns electronically, to make on-line payments and to receive a stamping certificate.

⁷ Moreover, the number of new completions on the PPR (i.e. where the property is a new property, the price shown is exclusive of VAT at 13.5 per cent) is approximately 50 per cent lower than the number of recorded new house completions in the *Housing Statistics* for 2013 and 2014. Some portion of this may feasibly relate to timing differences in the submission of stamp duty returns or to the connection of unsold but completed housing units to the electricity network (see Section 3.3 below). In a small number of cases, the relevant PPR rows contain a number of records where the sale price was shown as €2 million or more and many of these will contain multiple properties. This, again, suggests that the true volume of transactions is underestimated by headline PPR statistics.

Chart 2: Trends in Property Price Register (PPR) annual transaction records and an estimate of the underlying volume of properties transacted



Source: PPR database and authors' own calculations.

Note: PPR data extracted: 04/05/2016 (latest update: 27/04/2016). The PPR data is dynamic and subject to change as new records are added (at least until many months after a particular period). The estimate of the actual volume of underlying residential properties transacted refers to authors' own calculations and will likely still underestimate the true volumes.

3. Data Limitations and Methodology

The purpose of this section is to outline the approach adopted by the authors in endeavouring to construct a time-series estimating the total volume of residential property transactions (i.e. sales) in Ireland over recent years and to estimate the volume of cash-only sales contained therein. In the first instance, we show that the methodology presented in Section 2 can be replicated for the period since the introduction of the PPR in 2010 to produce comparable estimates for the period 2010-2014 and the methodological amendments deemed useful to improve these estimates. Secondly, we demonstrate why such an approach is not applicable for the period pre-2010 and explore the alternative approach used here.

3.1 Deriving estimates for the period 2010-2014

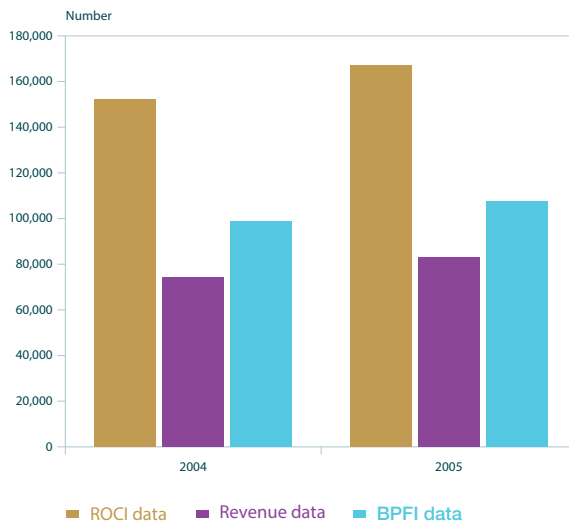
It is feasible to replicate the methodology outlined in Section 2.1 above to produce comparable estimates for the period 2010-2014. In doing so, we can use these same sources (i.e. recorded transactions and mortgages drawn down) to produce robust estimates of both the volume of residential property transactions and the volume of cash-only sales. We have, however, adopted a number of minor modifications. In the first instance, we have amended the volume of transactions to reflect the concerns which surfaced in Section 2 above with regard to the potential for multiple housing units to be captured in a single record on the PPR. Secondly, we have also made some further minor modifications to address specific constraints with regard to factors such as site-only sales where the latter are not necessarily captured in the PPR database.

3.2 Deriving estimates for the period 2000-2009

It is more challenging to derive similar estimates for the period prior to the introduction of the PPR as there is no comparable database for all residential property transactions pre-2010. One option explored here was to use data – made available by the Office of the Revenue Commissioners – on the total number of stamp duty returns (SDRs) over the period 2000-2009. This, however, did not prove feasible as there was a divergence between these figures and other useful metrics such as residential mortgages drawn down and completions of new private dwellings. This is discussed in greater detail in the Annex.

Whilst these data series on residential property transactions were not suitable for our purposes here, there have been previous endeavours to produce estimates with regard to the metrics that interest us pre-2010. The Department of the Environment, Community and Local Government has published an annual Review

Chart 3: Comparative data metrics (transactions, stamping and mortgage lending)



Source: DKM (2005, 2006).

Note: See Annex.

and Outlook for the Construction Industry (ROCI) for many years⁸. These reports previously included estimates for the total number of residential property transactions and the proportion of purchases financed without a mortgage. The methodology used was predicated upon a comparison of the number of mortgage loans paid out for new houses with the number of new private houses built in order to derive an indicator of the number of new homes financed without a mortgage. The report then assumes the same proportion of second-hand homes was financed without a mortgage in order to estimate the total number of residential property transactions.⁹

These reports had estimated that some 152,000 residential transactions (Chart 3) were completed in 2004 with cash buyers accounting for 38 per cent of new homes. For 2005, the results were 167,000 residential transactions with cash buyers at 33 per cent

of transactions. In retrospect, there are a number of potential limitations to the original ROCI methodology and we have adopted a modified approach to address these. These amendments are outlined below.

3.3 Data amendments for the period 2000-2009

In modifying the original ROCI approach, we endeavoured to address three specific considerations. Firstly, non-prime mortgages (i.e. sub-prime mortgages) are not included in mortgage loan drawdown figures used to extrapolate the volume of cash buyers. We have adjusted our time-series to account for these. Secondly, new house completions for social housing purposes are not included in our analysis. Finally, the original methodology implicitly assumes that all new house completions¹⁰ are bought (either with a mortgage or cash) with an assumed 100 per cent throughput in an active and functioning market. Potentially, this approach will not allow for the steep rise in unsold, vacant properties in a partly inactive or dysfunctional market. It is challenging, however, to interpret the available data and assess its implications for this research. Further detail on the amendments adopted here is provided in the Annex.

4. Results and Estimates Derived from the Model(s)

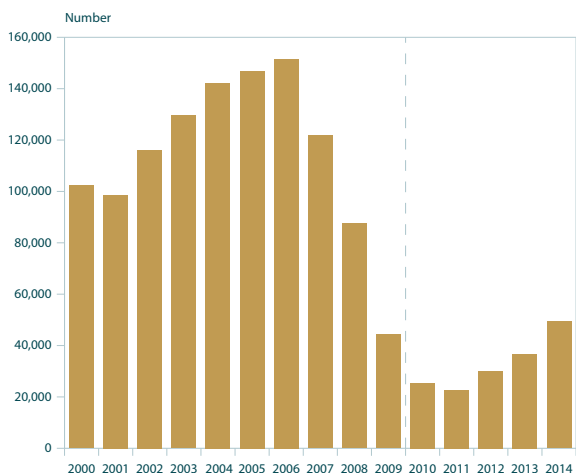
The purpose of this section is to present our estimates for the volume of annual residential property transactions in Ireland since 2000. We also present the derived estimates with regard to the volume of cash buyers in the market over time and their role as a proportion of the total market. These results were estimated using the models outlined previously and, in so doing, we have combined two approaches which merge the available data for the periods 2000-2009 and 2010-2014. We then proceed to address trends in the level of turnover of

⁸ The Department of the Environment, Community and Local Government was responsible for the publication of the ROCI each year up to 2003. From 2004, the Department gave editorial independence to DKM Economic Consultants. Thereafter, the ROCI was commissioned and funded by the Department albeit that the report was independent.

⁹ Total transactions are then calculated as the total number of new house completions (all sectors) plus the estimated number of second-hand houses transacted (with and without mortgage finance).

¹⁰ Electricity connections are used as the proxy for new house completions in the *Housing Statistics*. The official statistics, therefore, record each completion when the meter is installed and goes live (but not necessarily in the year when the unit is completed). There are a number of reasons as to why vacant housing units would come to be connected prior to a sale. For instance, unsold units could be connected on foot of the updated Building Regulations (2008). It is not possible to quantify the number of units in this category.

Chart 4: Estimated volume of total residential property transactions

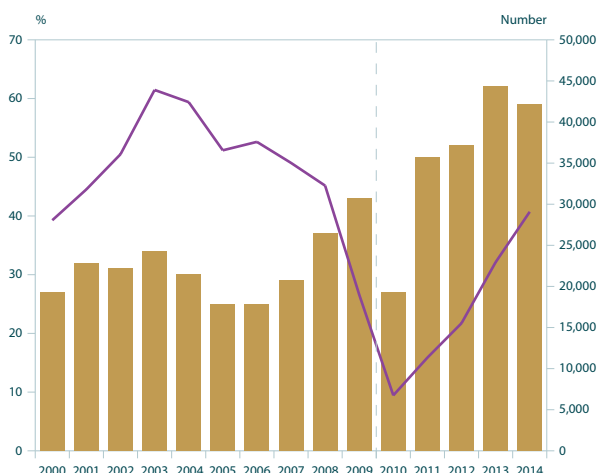


■ Estimated sales' transactions

Source: PPR database (2010-2014 only) and authors' own calculations (using amended ROCI model).

Notes: (i) Time series merges methodologies and datasets for 2000-2009 and 2010-2014 (denoted by vertical line).
 (ii) Nominal figure for additional transactions included with regard to site-only sales (2010-2014).

Chart 5: Estimated proportion and volume of cash buyers



■ Cash buyer transactions % (LHS)

■ Number of cash buyer units transacted (RHS)

Source: PPR database (2010-2014 only) and authors' own calculations (using amended ROCI model).

Note: Time series merges methodologies and datasets for 2000-2009 and 2010-2014 (denoted by vertical line).

residential property in Ireland and outline some thoughts on the role of cash buyers as the cyclical patterns of demand play out over time.

of transactions has begun to recover and stood at close to 50,000 transactions by 2014 (Chart 4).

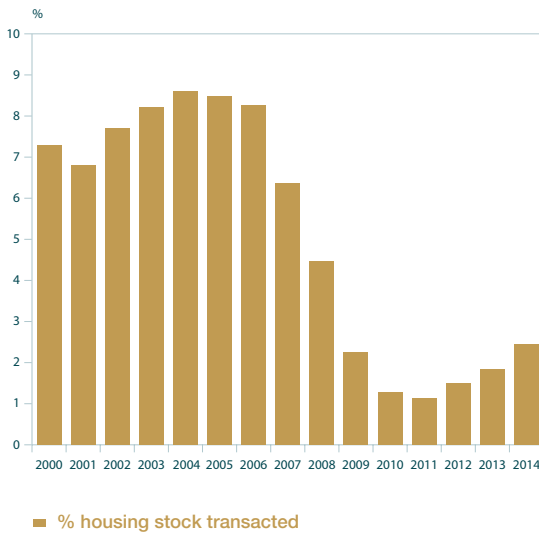
4.1 Estimated transactions and the prevalence of cash buyers

The modified ROCI model employed here suggests that total sales' volumes stood at close to 100,000 transactions in 2000. As the market began to overheat, these volumes continued to expand over subsequent years. By 2005, we estimate that these volumes had increased by almost 50 per cent to approximately 147,000 transactions before peaking at 151,000 transactions at the top of the market in 2006. These results are broadly consistent with the previous Department of the Environment-commissioned analyses for this period. Thereafter, there followed a sharp downward adjustment as the estimated volume of transactions reduced in later years. By 2010, there were approximately 25,000 transactions (or a reduction of 83 per cent when compared to the peak). The volume of mortgage-based transactions fell by the same magnitude. In recent years, the overall volume

Following on from these estimates of the total volume of properties transacted, we can then derive an estimate of the number, and proportion, of cash buyers over time (Chart 5). The data presented below suggests that there were approximately 28,000 cash buyer transactions in 2000. These volumes increased over the next three years before volumes fell-back after 2003. In recent years, we estimate that the volume of cash-buyer transactions was approximately 23,000 and 29,000 in 2013 and 2014, respectively. In other words, the volume of transactions financed without a mortgage was quite close to that pertaining during 2000 and 2001.

The proportionate increase in the volume of cash-buyer transactions since 2010 is significantly higher than the equivalent increase in the volume of residential mortgages drawn down over the same period. Similarly, whilst the estimates presented here suggest that cash-buyer volumes have recovered to levels

Chart 6: Estimated annual turnover of residential properties (all transactions)



Source: Department of the Environment, Community and Local Government Housing Statistics (Estimate of Housing Stock for each year ended 31 December - 1991 to date) and authors' own calculations.

pertaining in the early 2000s, the volume of residential mortgage loan payments has not. The reduction in the volume of mortgage-based transactions is evident in the change in the proportion of cash sales over time. We estimate that cash sales accounted for approximately 30 per cent of all transactions between 2000 and 2004. These then fell back to 25 per cent of all transactions as the market reached its peak. These estimates also suggest a further retrenchment by 2010. This may have arisen on foot of greater uncertainty as the European sovereign debt crisis began to unfold and Ireland moved into its Troika bailout programme.

In more recent years, however, cash sales have come to account for a significantly higher proportion of the total. We estimate that these accounted for 50 per cent of all transactions in 2011 and that this rose to 62 per cent and 59 per cent in 2013 and 2014, respectively.

4.2 Turnover of residential properties over time

It has previously been noted that in a functioning residential property market, approximately one in every 25 units (or 4 per cent) would be transacted in a given year (TEGoVA, 2012; GeoDirectory, various years).¹¹ In a recent analysis of the stock of residential properties in Ireland, GeoDirectory (2015) found that the residential property market is still performing below *‘what would be deemed to be a more normal level of transactions...’* This analysis also found that there was a notable geographical variance in the turnover of residential stock with Dublin, Westmeath and Kildare experiencing the highest turnover rates. By contrast, Monaghan, Donegal and Tipperary had the lowest rates of turnover.

In the midst of Ireland’s property boom, we estimate that the rate of turnover was regularly closer to a range of 8 to 9 per cent. This was approximately twice the expected – or normal – level (Chart 6) and reflects the dysfunctional nature of an overheating market at that time. This rate, however, is now closer to 2 per cent (or less than 50 per cent of the level expected in a functioning property market), albeit that we do estimate that the turnover rate in 2014 was significantly higher than in 2010.

4.3 Cyclical trends in demand and supply patterns

During the rising property market from 2003 to 2006 a surge in speculative investment and development occurred, both in high-growth areas with strong demand and also in weak locations where little demand was present. At this point in the market, financiers also became more willing to lend, both to development interests and to potential purchasers, and the supply of property rose substantially. With developments attracting sales and lettings at high profit levels, this encouraged increasing numbers of new developers, purchasers and investors to enter the market place (Williams et al, 2016). Early entrants experienced high

¹¹ The Institute of Professional Auctioneers and Valuers is represented on TEGoVA. TEGoVA (2012) found that in a steady, normally functioning economy and property market the level of stock turnover should be between 3 and 4 per cent (of the total housing stock) per annum. GeoDirectory – established by An Post and Ordnance Survey Ireland – has commissioned a number of reports on the stock of residential properties in Ireland. GeoDirectory (2014; 2015) found that a normal level of transactions would be approximately 4 to 5 per cent of the housing stock per annum.

profits, having acquired residential units for low prices during the weak phase of the market with potential for cash purchasers to obtain properties at low prices. However, the influx of later entrants pushed up prices and reduced such opportunities for cash purchases. This increase in supply reached its peak by 2006 and 2007, leading to excess supply beyond a level appropriate to available demand. With supply levels eventually exceeding demand levels in 2006 and 2007, price stabilisation and reductions occurred.

The nature of property development activity is that once initiated, a construction project may not be abandoned without incurring substantial losses. The time span over which a project will move from inception to completion – two years or substantially longer for larger, more complex projects – makes judgments of supply/demand relationships difficult, and such occurrences of oversupply are common internationally. The result is that rather than an orderly reduction in supply which might be termed a managed reduction, a major correction or crash occurred. The result of oversupply and the absence of demand are an increase in vacancy levels. This is followed by falling prices and reduced investor demand, leading to decreased profitability. As this stage was reached, new development proposals were suspended and major reductions in development activity occurred. Little development came on-stream resulting in a major correction in market activity levels.

At this point, cash sales can be a feature of such markets as below cost purchase opportunities come on-stream. For instance, receiver sales and auctions can often feature low-cost houses and apartments in areas of weak demand. Lower pricing levels allied with a weak lending market make the potential long-term gains for cash purchasers high. Such sales reduce surplus stocks and when the level of demand stabilises, this new demand can find supplies limited, due to the collapse of the development process.

5. Conclusions

The proportion of total residential property sales attributable to cash buyers (or non-mortgage transactions) appears to have grown and has been a recurrent theme in public discourse in recent years with a number of market estimates tending to put the proportion of cash buyers at close to 50 per cent (or more). Our objective has been to estimate the overall volume of residential property transactions in Ireland over almost two decades and to better understand the volume – and proportion – of transactions undertaken without recourse to a mortgage. Prior to the Government announcement on the establishment of a new property transactions database in 2010, there was no robust national data on housing transactions in the Irish market. Similarly, there was very little data available on non-mortgage based transactions. With the establishment of the PPR in 2010, there is now a useful database on residential properties purchased in Ireland and we have used this in our research for the period 2010-2014. In the case of earlier years, we developed an approach to overcome evident data gaps prior to the introduction of the PPR. This approach builds upon a methodology originally utilised in the Department of the Environment-commissioned analyses in 2004 and 2005.

The analysis presented here indicates that the presence of cash buyers – in both volume and proportionate terms – reduced as the market reached its peak around 2006. This dynamic is in-sync with anticipated cyclical flows within property markets as this period was characterised by the easy availability of credit and scarcer opportunities for low-cost acquisitions. There has been a marked turnaround in recent years as actual volumes have clearly increased. We estimate that the current volumes of cash-only sales are not entirely out-of-step with equivalent volumes in the early 2000s, albeit that cash buyers in prior years were operating in a more competitive, vibrant market. We also estimate that cash sales as a proportion of the total have risen

steadily in recent years, reaching approximately 60 per cent of total transactions in 2013 and 2014. This again reflects the market cycle as investors have responded to the opportunities available for low-cost acquisitions (including purchases of property assets from receivers or by way of auctions). Moreover, the upward movement in the proportion of cash sales is somewhat similar to the experience in the UK over the past decade (notwithstanding the difference in magnitude).

Whereas it is clear that cash buyers have increased as a proportion of total transactions, however, this also reflects the reduction in the volume of mortgage-based transactions. The composition of the cash buyer cohort in Ireland will also have changed. Whilst it is true that cash sales have been a feature of this market for many years, in more recent times we have seen a greater role being played by institutional and international investors (including acquisitions by speculative international asset management groups). This change will also have implications for cross-border funding flows into Ireland as many property asset acquisitions will have been financed by non-resident credit institutions and investors. Finally, this has been intended to be a technical estimation of cash (or at least, non-mortgage based) transactions in the Irish residential property market over time and in the context of market norms and cycles. The authors intend to pursue further analysis in time and in so doing, to look at policy factors and future implications for housing markets.

References

- Banking and Payments Federation of Ireland (BPFI) (various years), BPFI Mortgage Drawdowns Report – <http://www.bpfi.ie/publications/bpfi-mortgage-drawdowns/>
- Coates, D. and A. Moloney (2016), 'Box A: Real Estate Investment Trusts (REITs) and the Property Sector in Ireland', Central Bank of Ireland Quarterly Bulletin No. 2, pp. 33-35.
- Department of the Environment, Community and Local Government (various years), Housing Statistics – <http://www.environ.ie/housing/statistics/housing-statistics>
- DKM Economic Consultants (2005), Review of the Construction Industry 2004 and Outlook 2005-2007, Dublin: DKM Economic Consultants.
- DKM Economic Consultants (2006), Review of the Construction Industry 2005 and Outlook 2006-2008, Dublin: DKM Economic Consultants.
- DKM Economic Consultants (2010), Review of the Construction Industry 2009 and Outlook 2010-2012, Dublin: DKM Economic Consultants.
- First Citizen Asset Management – FCAM (2015), Irish Residential Mortgage Market: H1 2015, Dublin: FCAM.
- FitzGerald, J. (2005), 'The Irish Housing Stock: Growth in Number of Vacant Dwellings', ESRI Quarterly Economic Commentary (Spring), pp.1-22.
- GeoDirectory (2014), GEOVIEW Residential Buildings Report 2014, Dublin: GeoDirectory.
- GeoDirectory (2015), GEOVIEW Residential Buildings Report 2015, Dublin: GeoDirectory.
- Nationwide (2015), House Price Index, May 2015 – www.nationwide.co.uk/hpi
- Nationwide (2016), House Price Index, April 2016 – www.nationwide.co.uk/hpi
- Savills (2015), Residential Property: Q1 2015, Dublin: Savills World Research – Ireland Residential.
- Savills (2016), Savills Residential Ireland: March 2016, Dublin: Savills World Research – Ireland Residential.
- Sherry FitzGerald (2015), Irish Residential Market: Winter Review 2014, Outlook 2015, Dublin: Sherry FitzGerald.
- Slattery, L. (2007), 'Sub-prime mortgage market reigns supreme' in The Irish Times (<http://www.irishtimes.com/business/sub-prime-mortgage-market-reigns-supreme-1.1290721>)
- Society of Chartered Surveyors Ireland (2014), Annual Residential Property Review and Outlook 2014, Dublin: Society of Chartered Surveyors Ireland.
- Society of Chartered Surveyors Ireland (2015), Annual Residential Property Review and Outlook 2015, Dublin: Society of Chartered Surveyors Ireland.
- Stationery Office (Government Publications) (2014), Construction 2020 – A Strategy for a Renewed Construction Sector, Dublin: Stationery Office.
- TEGoVA (2012), Country-specific Legislation and Practice – Country Chapter: Ireland, Dublin: IPAV.
- The Competition Authority (2007), DETERMINATION OF MERGER NOTIFICATION M/07/035 - Investec/Kensington, Dublin: The Competition Authority (www.ccpc.ie/file/16060/download?token=2tqLhjWp)
- Williams, B. and Z. Nedovic-Budic (2016), 'The real estate bubble in Ireland: Policy context and responses' in Urban Research & Practice, pp.1-15.

Annex

Deriving estimates for the period 2010-2014

In the case of these site-only sales, household mortgage finance may be drawn down to ultimately construct housing stock but we have been advised that no matching transaction will appear in the SDRs.¹² Data provided to the authors indicates that there were approximately 68,000 of these transactions between 2000 and 2009 (or 6,800 p.a.). The number of site-only transactions in 2014 was closer to 4,300 and we have included a nominal add-back to proxy these transactions for each year between 2010 and 2014.

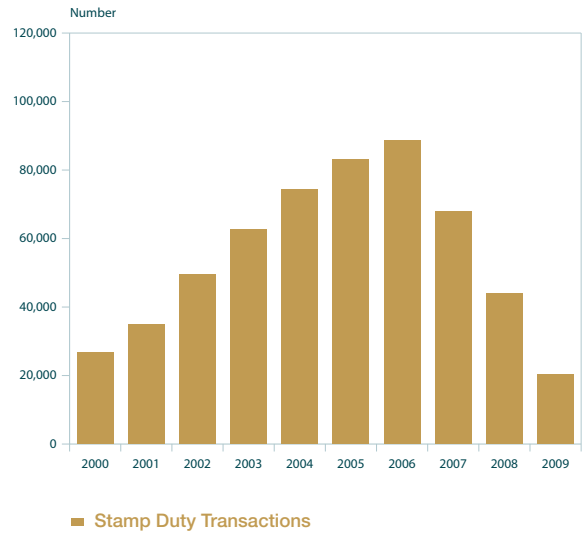
Finally, we have also included amendments to address sub-prime mortgage lending¹³ and potential time-lags in the date of filing transactions with the Revenue Commissioners. The estimated results of this process are broadly consistent with those presented above. These indicate that cash buyers accounted for approximately 49 per cent of total sales in 2011, rising to 62 per cent in 2013 and 59 per cent in 2014. These results are discussed in further detail in Section 4.

Deriving estimates for the period 2000-2009

The publicly available information in respect of the total number of residential property transactions indicates that there were 44,000 such transactions in 2004. By 2005, this had increased to almost 45,000 before peaking at approximately 53,000 in 2006.¹⁴ These figures, however, are limited to residential property transactions where stamp duty was paid. An alternative approach is to consider the total number of SDRs over this period (i.e. whether stamp duty was payable or otherwise) (Chart A1).

It is difficult to use this data as a proxy for the total transactions pre-2010 (i.e. to backcast

Chart A1: Trends in Stamp Duty returns



Source: Estimates generated by the Office of the Revenue Commissioners and relate to data from the pre-2010 (pre-e-Stamping) system.

Note: Data represent property transactions (not just duty paid transactions) and are likely to exclude site-only purchases. The latter may have been captured under transactions flagged as non-agricultural land.

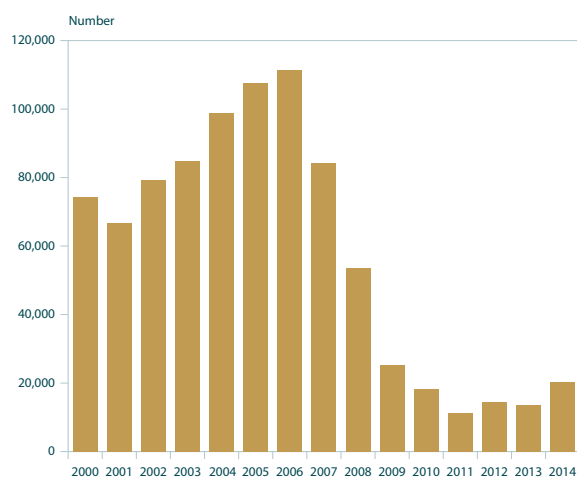
for an earlier period). There is a divergence between these figures and other useful metrics such as residential mortgages drawn down (Chart A2) and completions of new private dwellings (Chart A3) and it is not clear how either time-series could be retrospectively, and correctly, revised to ameliorate the variation. Specifically, it is very difficult to model a retrospective comparison between the available data on residential mortgages drawn down and the above annual SDR estimates as there would appear to be a disconnect between the two over time with the former regularly exceeding the latter. In other words, such an approach would produce an unrealistic estimate (i.e. a negative derived cash buyers figure). For instance, the SDR data indicate that there were 27,000 transactions in 2000 compared with 74,000 residential mortgages. Similarly, there were 89,000 transactions in 2006 compared with 111,000 residential mortgages (when top-ups, re-mortgages and sub-prime lending are excluded)¹⁵.

¹² In such cases, it is likely that these transactions will be flagged as non-agricultural land.

¹³ This lending is of only marginal importance in the aftermath of the financial crisis.

¹⁴ Dáil Éireann Parliamentary Question: Ref No: 25259/10 (Tuesday 15th June 2010).

¹⁵ When top-ups and re-mortgages are included, the total for 2006 was closer to 204,000 loans. These are excluded as such lending does not give rise to another property purchase (transaction). The BPF Mortgage Market Profile defines a top-up as 'a further mortgage advance to an existing borrower which is issued to finance expenditure other than house purchase' and a re-mortgage as 'a loan which is issued by one lender to refinance an existing mortgage with another lender. This may or may not include further equity release'.

Chart A2: Trends in residential mortgages drawn down

■ Mortgages

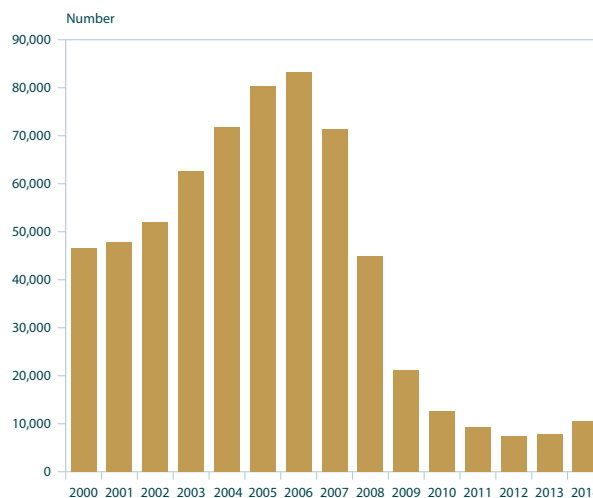
Source: Department of the Environment, Community and Local Government Housing Statistics - series on loan payments by all agencies (banks, building societies, and local authorities).

- Notes: (i) Data exclude re-mortgage and top-up lending albeit that data for 2007 onwards may not be strictly comparable with previous years as the latter can contain an unquantified element of the refinancing of existing mortgages.
(ii) Housing Statistics data series does not include sub-prime mortgage lending.
(iii) Authors considered using BPF1/PwC Mortgage Market Profile data to adjust for these factors in certain earlier years but this was not feasible.

Data amendments for the period 2000-2009

Firstly, any exclusion of sub-prime mortgages would potentially lead to an over-estimation of the volume of cash buyers by understating the volume of mortgage-based transactions. The supply of such specialist mortgages was relatively new in Ireland during the early part of the last decade. Only two principal companies were engaged in the provision of these mortgages by 2004, albeit that there were four new entrants in 2007 (The Competition Authority, 2007).

Contemporary estimates put the value of this new lending at €1 billion per annum in 2006 and it was estimated that this would grow to €10 billion by 2010 (Slattery, 2007). This implies that sub-prime mortgages accounted for approximately 2.5 per cent of all new mortgage lending in 2006 (€39.8 billion). It is understood, however, that a significant

Chart A3: Completions of new private dwellings

■ New dwellings

Source: Department of the Environment, Community and Local Government Housing Statistics - series on house completions, 1970 to date (by sector).

- Notes: (i) House completions relate to the number of new dwellings connected to the electricity supply. Due to a temporary backlog in 2005, the connection of approx. 5,000 otherwise completed units was not finalised until early 2006. The figures presented here have been amended accordingly.
(ii) Data considered here only relates to new private houses as the delivery of local authority housing output does not necessarily imply an associated 'new' housing completion. For instance, completions relating to long-term voids were included here as new build completions until 2010. Similarly, units acquired under Part V of the Planning and Development Acts, 2002-2008 for rental purposes were also included here.

proportion of this lending was attributable to re-mortgages (or other products, such as lifetime mortgages, where no transaction arises). For the purposes of this research, we have adjusted our time-series to capture the relevant cohort¹⁶ but we sought to exclude sub-prime mortgages used to re-mortgage extant debt.

Secondly, we do not include new social housing units under the variable denoting all house completions. Such non-private housing typically accounts for a relatively minor proportion of the total – as low as 6 per cent in 2006 – but at least some proportion of these completions will not have been subject to a sale (with or without mortgage finance) as these are constructed for local authority, voluntary and cooperative rental purposes. Furthermore, in previous years completions

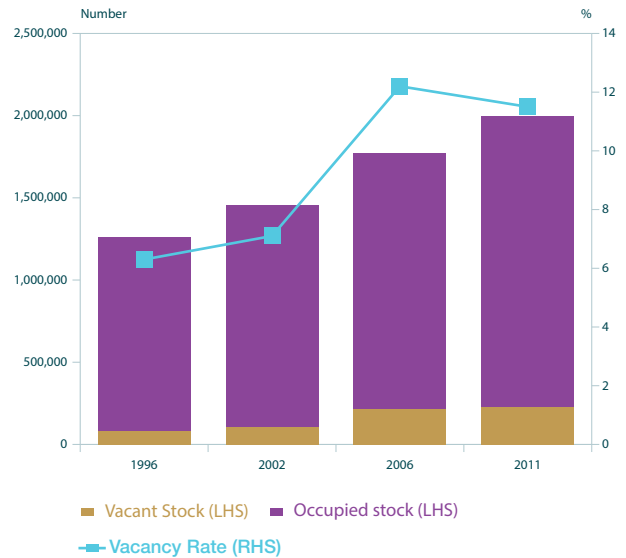
¹⁶ In the absence of definitive data, we have assumed that the same proportion of new (sub-prime) lending applied to the First-time Buyer/Mover/Residential Investment Letting purchase categories. This attributes approximately 50 per cent of sub-prime loans to the mortgagor cohort that is relevant here but, nonetheless, the absolute figures are quite small.

relating to long-term voids were included as new build completions in the Department of the Environment's published statistics.

Finally, units can be vacant for a short period to facilitate renovations or a change in ownership (or tenancies). A typical vacancy rate in a functioning market is expected to be approximately 4.5-6 per cent (Stationery Office, 2014). With the publication of research by FitzGerald (2005) and the subsequent Census 2006 results, it became clear that a disconnect had emerged between the actual vacancy rate in Ireland and the assumed 'normal'. Heretofore, this information had not been publicly available. These results indicated that the vacancy rate had increased marginally between 1996 (6.3 per cent) and 2002 (7.1 per cent) but thereafter, it increased to 12.2 per cent by 2006. The latter implies some 217,000 vacant units¹⁷ (or an increase of 112,000 units over just four years) (Chart A4). In interpreting the significance of the increase in the vacant stock for our work, we considered whether (and how) this was to be addressed in our estimation process.

There are two key considerations here. It is only in those cases where vacant – but completed units – were 'energised' (i.e. connected to the electricity network) that these units would appear in the new house completion statistics used here. In general terms, however, the connection is only made when a buyer moves into the property, albeit that this is not always the case (DKM, 2010). Also, it is only in cases where those same vacant units were sold that a transaction (with or without mortgage finance) occurred. Unsold vacant units do not feature here. For the purposes of this research, we have assumed that 20 per cent of the estimated increase in the vacant stock in each year related to new completions that were connected to the electricity network and that said units were unsold during the period covered here.¹⁸

Chart A4: Census data on the volume and proportion of habitable vacant dwellings in the Irish housing stock



Source: CSO Census (various years); FitzGerald (2005).

Notes: (i) Vacant units refers to unoccupied houses and flats/apartments but excludes temporarily unoccupied/vacant units (residents temporarily absent) and unoccupied/vacant holiday homes. The vacancy rate shown here excludes holiday homes.
 (ii) Units recorded as 'Under construction' or 'Derelict' are not included here.

¹⁷ For the purposes of this research, vacant units exclude habitable dwellings classified as 'temporarily absent' or 'holiday homes'. Units classified as uninhabitable (including 'under construction') are also excluded.

¹⁸ It has previously been estimated that a significant volume of newly completed housing units remained unsold in the aftermath of the financial crisis in Ireland. Our assumption implies that the majority of the increase in the vacant stock (including new units) was not connected to the electricity network and does not flow through into the *Housing Statistics* as new house completions. It is possible, however, that some proportion of these vacant and unconnected houses were actually sold – particularly to investors – but it is very difficult to adequately estimate the incidence of these transactions. These transacted but vacant units are not included here.

Statistical Appendix

Statistical Appendix

The publication of the Statistical Appendix of the Quarterly Bulletin was discontinued from Quarterly Bulletin 1 2014. Statistical data compiled by the Central Bank are accessible on the Statistics page of the Central Bank's website, <http://www.centralbank.ie/polstats/stats/Pages/default.aspx>. Some tables, previously published in the Statistical Appendix, have been expanded to provide more comprehensive data. A number of statistical tables, which were not published in earlier Bulletins, have also been added.

The list of statistical tables and links to access them on the website are given on the following page.

STATISTICAL TABLES: CENTRAL BANK WEBSITE LINKS

Money and Banking:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/Money%20and%20Banking.aspx>

- Summary Irish Private Sector Credit and Deposits
- Financial Statement of the Central Bank of Ireland
- Credit Institutions – Aggregate Balance Sheet
- Credit Institutions (Domestic Market Group) – Aggregate Balance Sheet

Business Credit and Deposits:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/BusinessCredit.aspx>

- Credit Advanced to Irish Resident Private-Sector Enterprises
- Deposits from Irish Resident Private-Sector Enterprises

Private Household Credit and Deposits:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/HouseholdCredit.aspx>

- Credit Advanced to and Deposits from Irish Private Households

Money Market Funds:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/MoneyMarketFunds.aspx>

- Money Market Funds Aggregate Balance Sheet
- Money Market Funds Currency Breakdown of Assets

Retail Interest Rates:

<http://www.centralbank.ie/POLSTATS/STATS/CMAB/Pages/Retail%20Interest%20Rate%20Statistics.aspx>

- Retail Interest Rates - Deposits, Outstanding Amounts
- Retail Interest Rates - Loans, Outstanding Amounts
- Retail Interest Rates and Volumes - Loans and Deposits, New Business
- Official and Selected Interest Rates

Investment Funds:

<http://www.centralbank.ie/polstats/stats/investfunds/Pages/data.aspx>

- Ireland: Investment Funds Data

Securities Issues:

<http://www.centralbank.ie/polstats/stats/sis/Pages/Issues.aspx>

- Securities Issues Statistics

Financial Vehicle Corporations:

<http://www.centralbank.ie/polstats/stats/fvc/Pages/data.aspx>

- Irish Financial Vehicle Corporations

Locational Banking Statistics:

<http://www.centralbank.ie/polstats/stats/locational/Pages/data.aspx>

- Total Positions of Banking Offices Resident in Ireland vis-a-vis Residents and Non-Residents

Quarterly Financial Accounts:

<http://www.centralbank.ie/polstats/stats/qfaccounts/Pages/Data.aspx>

- Financial Accounts for Ireland: Q1 2012 to present – ESA 2010

Public Finances and Competitiveness Indicators:

<http://www.centralbank.ie/polstats/stats/sis/Pages/SecuritiesHoldingsStatistics.aspx>

- Gross National Debt
- Holdings of Irish Government Long-term Bonds

<http://www.centralbank.ie/polstats/stats/Pages/hcis.aspx>

- Nominal and Real HCIs

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